Testogram
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Aarohan UTS 2027

This is what one test teaches you.

Every question from GS Full Length 1: Diagnostic is here, with the right answer and the reasoning behind it. Read the explanations, not the answer key. That is where the marks for the next test are.

Updated on 19 November 2026

If this booklet reached you from a friend, the next one can carry your own answers.

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A wrong answer you understand is worth more than a right one you guessed.

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1 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): Implementing one-third reservation for women in the Lok Sabha before the 2029 general election on the basis of the 2011 Census required a constitutional amendment, and could not be done by an ordinary Delimitation Act alone.

Reason (R): Article 334A links the coming into effect of reservation for women to a delimitation exercise undertaken after the relevant figures of the first Census taken after the commencement of the Constitution (106th Amendment) Act, 2023 have been published.

(a) Both A and R are true and R is the correct explanation of A ✓

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Explanation

The correct answer is (A): both A and R are true, and R is the correct explanation of A. The constitutional text itself fixes the trigger - a post-2023 Census followed by delimitation - so using 2011 Census data needed the Constitution to be amended.

Assertion is true: the Government introduced the Constitution (131st Amendment) Bill, 2026 alongside the Delimitation Bill, 2026 precisely because the 2011-Census route could not be adopted by ordinary law; when the amendment failed in the Lok Sabha (April 2026), the linked Delimitation Bill was not pursued, and in August 2026 the Union Government reiterated that reservation remains tied to census-based delimitation. Reason is true: Article 334A (inserted by the 106th Amendment - the Nari Shakti Vandan Adhiniyam) makes reservation operative only after delimitation based on the first Census taken after 2023. Reason explains Assertion: since Article 334A ties the trigger to a post-2023 Census, an ordinary law choosing the 2011 Census would conflict with the Constitution. Hence (A); (B) understates the causal link, and (C)/(D) wrongly treat one proposition as false.

> Many aspirants think women's reservation can start whenever the Government chooses. Article 334A makes it operative only after the Census-plus-delimitation trigger, for 15 years from then; and the Article 82 freeze on readjustment until the first Census after 2026 points the same way.

2 After the Constitution (131st Amendment) Bill, 2026 failed to secure the required majority in the Lok Sabha, the Government reiterated in August 2026 that women's reservation remained tied to census-based delimitation. With reference to the amendment of the Constitution under Article 368, which one of the following statements is correct?

(a) Such a Bill can be introduced only by a Minister, and only on the prior recommendation of the President.

(b) The 'special majority' under Article 368(2) means two-thirds of the total membership of each House.

(c) A deadlock between the two Houses over such a Bill can be resolved through a joint sitting under Article 108.

(d) The President cannot withhold assent from such a Bill once it is duly passed and presented to him. ✓

Explanation

The correct answer is (d). Article 368(2), as amended by the 24th Amendment (1971), says the President 'shall give his assent' to a Constitution Amendment Bill duly passed, so he can neither withhold assent nor return it for reconsideration.

Option (a) is wrong: a Constitution Amendment Bill may be introduced by a Minister or a private member in either House, and it does not require the President's prior recommendation. Option (b) is wrong: special majority means a majority of the total membership of each House AND two-thirds of the members present and voting - the 131st Amendment Bill fell short of this in April 2026. Option (c) is wrong: there is no provision for a joint sitting on a Constitution Amendment Bill; each House must pass it separately by special majority. Option (d) is correct for the reason stated in the verdict.

> Do not import ordinary-Bill rules (joint sitting under Art. 108, presidential veto under Art. 111) into Article 368. And remember the special majority is a double test, not just 'two-thirds of total membership'.

3 The Kerala (Alteration of Name) Act, 2026, which renamed the State as 'Keralam', came into force on 25 August 2026. With reference to the constitutional procedure for altering the name of a State, consider the following statements:

1. A Bill for this purpose can be introduced in either House of Parliament only on the recommendation of the President.
2. The views expressed by the concerned State Legislature on such a Bill are binding on Parliament.
3. Since such a Bill amends the First Schedule, it must be passed by the special majority prescribed under Article 368.

How many of the statements given above are correct?

(a) Only one ✓

(b) Only two

(c) All three

(d) None

Explanation

The correct answer is (a) Only one. Only Statement 1 is correct. Under the proviso to Article 3, a Bill to alter the name of a State needs the President's prior recommendation, and Article 4 declares such a law not to be an amendment of the Constitution for the purposes of Article 368.

Statement 1 is correct: the proviso to Article 3 bars introduction of such a Bill in either House except on the recommendation of the President; for Keralam, the President referred the proposal to the State Assembly, which endorsed it in July 2026 before the Bill was introduced. Statement 2 is wrong: the President refers the Bill to the State Legislature only for expressing its views within a specified period; Parliament is not bound by those views (Babulal Parate v. State of Bombay, 1960). Statement 3 is wrong: although the First Schedule is altered, Article 4(2) says a law under Article 3 is not deemed a constitutional amendment under Article 368, so a simple majority suffices. Hence only one statement is correct - option (a); (b), (c) and (d) miscount.

Ways the Constitution can be changed

Route	Majority needed	Example
Outside Art. 368 (e.g. Arts. 3/4, 169)	Simple majority	Kerala renamed Keralam (2026)
Art. 368 - special majority	Majority of total membership + 2/3 present and voting	Fundamental Rights, DPSP changes
Art. 368 - special majority + States	Above + ratification by half the States	GST (101st Amendment), Seventh Schedule lists

Candidates assume that anything touching a Schedule needs Article 368. Articles 2, 3, 4, 169 and the Fifth/Sixth Schedule paragraphs are classic 'amendments by simple majority' outside Article 368. Also, 'consulting' the State Legislature is not 'consent'.

The same mistake, made twice, is a habit. This is where you catch it the first time.

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4 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): A member of a State Legislative Assembly who accepts a bribe to vote in a particular way in a Rajya Sabha election cannot claim immunity from prosecution under Article 194(2).

Reason (R): Article 194(2) protects a member of a State Legislature from proceedings in any court in respect of anything said or any vote given by him in the Legislature or any committee thereof.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A ✓

(c) A is true but R is false

(d) A is false but R is true

Explanation

The correct answer is (B): both statements are true, but R does not explain A. R describes the scope of the immunity; A follows from the Supreme Court's holding in Sita Soren v. Union of India (2024) that bribery is not protected because it is not essential to a legislator's speech or vote.

Assertion is true: a seven-judge Bench in Sita Soren (2024) unanimously overruled P.V. Narasimha Rao (1998) and held that neither Article 105(2) nor 194(2) shields a legislator from prosecution for bribery, which is complete when the bribe is accepted, whether or not the vote is cast as agreed. The case concerned an MLA's vote in a Rajya Sabha election. Reason is true: it accurately states the text of Article 194(2). But R does not explain A - read on its own, R would point towards immunity; A rests on the Court's reasoning that a privilege must be necessary for the House to function. Hence (B), not (A). (C) and (D) are wrong because both statements are true. Context: since 6 October 2026, another seven-judge Bench has been hearing whether Article 194(3) privileges can override citizens' freedom of speech under Article 19(1)(a).

> When R is a correct paraphrase of the very provision that A seems to contradict, it rarely 'explains' A. Ask what A actually rests on - here, a judicial limit on privilege, not the text of Article 194(2).

5 **In August 2026, Parliament passed the Appropriation (No. 3) Bill, 2026 to regularise about Rs 54,067 crore spent during 2022-23 beyond the amounts granted. Which one of the following statements about such 'excess grants' is correct?**

(a) Excess grant demands go to the Lok Sabha for a vote only after the Public Accounts Committee examines them. ✓

(b) Like supplementary grants, they are presented in the same financial year in which the excess spending is expected.

(c) The Rajya Sabha must vote on demands for excess grants before they are placed before the Lok Sabha for its vote.

(d) Excess spending stands regularised once the CAG certifies the accounts, without any fresh vote of Parliament.

Explanation

The correct answer is (a). Under Article 115(1)(b), excess grants are sought after the financial year is over; by convention the Lok Sabha votes them only after the Public Accounts Committee has examined the excess and recommended its regularisation. The 2026 Bill followed the PAC's 39th Report (April 2026).

Option (a) is correct for the reason in the verdict. Option (b) is wrong: supplementary grants (Art. 115(1)(a)) are sought during the same year when the voted amount proves insufficient; excess grants come after the year has closed and the excess has been audited - here, 2022-23 spending was regularised in 2026. Option (c) is wrong: only the Lok Sabha votes on demands for grants (Art. 113); the Rajya Sabha merely discusses them, and the follow-up Appropriation Bill is a Money Bill on which the Rajya Sabha can only make recommendations within 14 days. Option (d) is wrong: no money can be withdrawn from the Consolidated Fund except under appropriation made by law (Art. 114(3)), so a CAG audit cannot substitute for a vote of Parliament.

Supplementary vs Additional vs Excess grants

Feature	Supplementary	Additional	Excess
When sought	During the year	During the year	After the year ends
Trigger	Voted amount insufficient	New service not in Budget	Spent more than granted
Prior scrutiny	-	-	Public Accounts Committee

> Do not confuse supplementary, additional and excess grants. The tell-tale for 'excess' is timing - it is always after the year, and always routed through the PAC.

6 **The Mines and Minerals (Development and Regulation) Amendment Act, 2026 restricts levies by States on mineral rights and mineral-bearing lands, two years after the nine-judge Bench ruling in Mineral Area Development Authority v. Steel Authority of India (2024). Consider the following statements:**

1. The power of States to levy taxes on mineral rights under the State List is expressly subject to limitations imposed by Parliament by law relating to mineral development.
2. In the 2024 ruling, the Supreme Court held that royalty payable under the MMDR Act, 1957 is in the nature of a tax.
3. Regulation of mines and mineral development, to the extent Parliament by law declares it expedient in the public interest, is a Union List subject.

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only ✓

(d) 1, 2 and 3

Reading a solution shows you the answer. Sitting the test shows you yourself.

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Explanation

The correct answer is (c) 1 and 3 only. Entry 50 of List II makes the States' taxing power over mineral rights subject to Parliament's limitations, and Entry 54 of List I places regulation of mines and mineral development under the Union to the extent Parliament declares it expedient. That combination is what the 2026 amendment uses.

Statement 1 is correct: Entry 50, List II reads 'Taxes on mineral rights subject to any limitations imposed by Parliament by law relating to mineral development'; the 2026 amendment is Parliament exercising exactly this power. Statement 2 is wrong: the 8:1 majority in MADA (2024) held that royalty is a contractual payment for enjoying mineral rights and NOT a tax, overruling India Cement (1989), and upheld States' competence to tax mineral rights (Entry 50) and mineral-bearing lands (Entry 49). Statement 3 is correct: Entry 54, List I covers regulation of mines and mineral development to the extent declared by Parliament by law to be expedient in the public interest (declared through Section 2 of the MMDR Act, 1957); States' Entry 23, List II is subject to it. Options (a), (b) and (d) include the false Statement 2.

Mineral entries in the Seventh Schedule

Entry	List	Subject
Entry 54	Union (I)	Regulation of mines and mineral development as declared by Parliament
Entry 23	State (II)	Regulation of mines and mineral development, subject to List I
Entry 49	State (II)	Taxes on lands and buildings (incl. mineral-bearing land)
Entry 50	State (II)	Taxes on mineral rights, subject to limits set by Parliament

> 'Royalty is a tax' was the 1989 India Cement position; MADA (2024) reversed it. Also note that the regulatory entry is Entry 54 of the UNION List, not the Concurrent List.

7 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): A two-judge Bench of the Supreme Court that finds a substantial question of constitutional interpretation in a case cannot itself constitute a Constitution Bench, and can only place the papers before the Chief Justice of India.

Reason (R): Under Article 145(3), a case involving a substantial question of law as to the interpretation of the Constitution must be heard by a Bench of at least five judges.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A ✓

(c) A is true but R is false

(d) A is false but R is true

Whoever sent you this knows their strengths, understands their gaps, and knows where they're headed. They're preparing with clarity and confidence—not fear. They know their edge. You can too.

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Explanation

The correct answer is (B): both statements are true, but R does not explain A. R fixes the minimum size of the Bench; A follows from the 'master of the roster' principle - only the Chief Justice of India can constitute Benches and allocate cases.

Assertion is true: in Campaign for Judicial Accountability and Reforms (2017) and Shanti Bhushan v. Supreme Court of India (2018), the Court held that the CJI alone constitutes Benches. Accordingly, in Dr Jaya Thakur v. Union of India (23 September 2026), the Division Bench hearing the challenge to the CEC and Other Election Commissioners Act, 2023 directed that the papers be placed before the CJI to consider constituting a Constitution Bench, and asked him to consider a permanent five-judge Bench. Reason is true: Article 145(3) prescribes a minimum of five judges. But R only tells us why the matter needs at least five judges; it does not tell us WHO constitutes that Bench, which is the point of A. Hence (B), not (A); (C) and (D) are wrong because both statements are true.

> Two true statements on the same theme are not automatically cause and effect. Check whether R answers the 'why' of A's specific claim - here A is about the power to constitute Benches, R is about Bench size.

8 **The Tribunals Reforms Act, 2026 sets up a National Tribunals Commission to run selections and oversee the performance of tribunals. With reference to the constitutional framework for tribunals in India, which one of the following statements is correct?**

(a) Under Article 323A, both Parliament and State Legislatures may set up tribunals for public service disputes.

(b) Since L. Chandra Kumar (1997), tribunal decisions are subject to the writ jurisdiction of the High Courts. ✓

(c) A tribunal set up under Article 323B can exclude the jurisdiction of the Supreme Court under Article 32.

(d) Articles 323A and 323B were part of the Constitution as originally adopted by the Constituent Assembly.

Explanation

The correct answer is (b). In L. Chandra Kumar v. Union of India (1997), a seven-judge Bench held that judicial review under Articles 226/227 and 32 is part of the basic structure, so tribunal decisions lie before a Division Bench of the High Court in whose jurisdiction the tribunal sits.

Option (a) is wrong: Article 323A (administrative tribunals for public service matters) empowers only Parliament; Article 323B (tribunals for other matters such as taxation, land reforms, elections) empowers both Parliament and State Legislatures. Option (b) is correct, as stated in the verdict. Option (c) is wrong: after L. Chandra Kumar, the clauses in Articles 323A(2)(d) and 323B(3)(d) excluding the jurisdiction of the High Courts and Supreme Court are unconstitutional to that extent. Option (d) is wrong: Part XIV-A (Articles 323A and 323B) was inserted by the 42nd Amendment, 1976. The 2026 Act responds to the Madras Bar Association line of cases, which had directed an independent National Tribunals Commission.

Article 323A vs Article 323B

Feature	Article 323A	Article 323B
Subject matter	Public service recruitment and conditions	Tax, land reforms, elections, food, rent etc.
Who may legislate	Parliament only	Parliament and State Legislatures
Hierarchy	Single tier (CAT and state ATs)	May be multi-tier

> 323A = Administrative tribunals = Parliament Alone. 323B = Both legislatures. The tribunals are substitutes for High Courts only as courts of first instance, never for judicial review.

9 **In August 2026, Parliament passed the Supreme Court (Number of Judges) Amendment Act, 2026, replacing an Ordinance of May 2026 and raising the sanctioned strength of the Supreme Court. Consider the following statements:**

1. The number of judges of the Supreme Court, other than the Chief Justice of India, can be increased by an ordinary law of Parliament without amending the Constitution.
2. An Ordinance promulgated under Article 123 ceases to operate six weeks after Parliament reassembles, unless resolutions disapproving it are passed earlier by both Houses.
3. A law replacing an Ordinance cannot be given effect from the date on which the Ordinance was originally promulgated.

Which of the statements given above is/are correct?

(a) 1 and 2 only ✓

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Explanation

The correct answer is (a) 1 and 2 only. Article 124(1) lets Parliament fix the number of puisne judges by law, and Article 123(2)(a) limits an Ordinance's life to six weeks from Parliament's reassembly. Statement 3 is false: the 2026 Act is itself deemed to have come into force on 16 May 2026, the date of the Ordinance.

Statement 1 is correct: Article 124(1) provides for a Chief Justice and 'such larger number of other Judges as Parliament may by law prescribe'; the 2026 Act amended Section 2 of the Supreme Court (Number of Judges) Act, 1956 from 33 to 37 (total strength 38). Statement 2 is correct: this is the text of Article 123(2)(a). Statement 3 is wrong: Parliament can legislate retrospectively, and replacing Acts routinely operate from the Ordinance date while saving action taken under it; the 2026 Act is deemed effective from 16 May 2026. Options (b), (c) and (d) include the false Statement 3.

> Students often think a court's size is 'constitutional' and so needs Article 368. It does not - only the CJI post is fixed by the Constitution; the number of other judges is set by statute (33 to 37 in 2026). Also, the six weeks run from reassembly, not from promulgation.

10 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): Even where a State law provides reservation for backward classes in Panchayats, the total vertical reservation for SCs, STs and OBCs ordinarily cannot exceed 50 per cent of the seats.

Reason (R): Article 243D of the Constitution expressly prescribes a ceiling of 50 per cent on the total reservation of seats in Panchayats.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false ✓

(d) A is false but R is true

Explanation

The correct answer is (C): A is true but R is false. The 50 per cent ceiling on vertical reservation in local bodies comes from judicial decisions, not from the text of Article 243D.

Assertion is true: in K. Krishna Murthy (2010) and Vikas Kishanrao Gawali (2021), the Supreme Court held that OBC reservation in local bodies needs the 'triple test' (a dedicated commission, local-body-wise empirical data, and an overall cap) and that total SC/ST/OBC reservation must not exceed 50 per cent (Scheduled Areas apart). Applying this, the Andhra Pradesh High Court struck down the State's 34 per cent BC quota on 1 October 2026, and the Supreme Court dismissed the State's appeal on 9 October 2026. Reason is false: Article 243D mandates SC/ST reservation in proportion to population, at least one-third for women, and merely ENABLES States to reserve for backward classes (Article 243D(6)); it contains no 50 per cent ceiling. Hence (C); (A) and (B) need R to be true, and (D) needs A to be false.

> Women's reservation (one-third) in Article 243D is horizontal and does not count toward the 50 per cent vertical cap. The cap itself is judge-made - a frequent statement trap.

The exam will ask what you avoided. Find out what that is while it still costs nothing.

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11 **Several States faced litigation in 2026 over overdue Panchayat elections. Suppose a Gram Panchayat constituted for five years is dissolved four years and three months after its first meeting. Which one of the following correctly states the constitutional position?**

(a) No election is needed since less than one year of the term remains; an administrator may run the Panchayat.

(b) Elections must be completed within six months, and the new Panchayat will get a full five-year term.

(c) Elections must be completed within six months, and the new Panchayat will serve only the remaining term. ✓

(d) Elections must be completed within one year, and the State may extend this period during an emergency.

Explanation

The correct answer is (c). Article 243E(3)(b) requires elections to be completed within six months of dissolution, and Article 243E(4) says a Panchayat so constituted continues only for the remainder of the period for which the dissolved Panchayat would have continued.

Here nine months of the term remain. Option (a) is wrong: the exemption from holding an election applies only where the remainder is LESS THAN SIX MONTHS (proviso to Article 243E(3)), not one year. Option (b) is wrong: under Article 243E(4) the new body does not get a fresh five-year term. Option (c) is correct for the reason in the verdict. Option (d) is wrong: the time limit is six months, and Part IX has no provision allowing a State to extend it. Courts, including in the 2026 Andhra Pradesh and Manipur matters, have repeatedly insisted on the constitutional timelines.

> The threshold is six months, not one year, and the reconstituted Panchayat serves only the balance of the term. Article 243U applies identical rules to Municipalities.

12 **In October 2026, the Supreme Court held that the ongoing Special Intensive Revision of electoral rolls by the Election Commission of India could not be a ground to delay local body elections in Andhra Pradesh. With reference to the State Election Commission (SEC), consider the following statements:**

1. The superintendence, direction and control of the preparation of electoral rolls for Panchayat elections is vested in the SEC.
2. The State Election Commissioner can be removed by the Governor on the advice of the State Council of Ministers.
3. The State Election Commissioner is appointed by the Governor.
4. Subject to the Constitution, the State Legislature may by law make provision for all matters relating to elections to Panchayats.

How many of the statements given above are correct?

(a) Only one

(b) Only two

(c) Only three ✓

(d) All four

Explanation

The correct answer is (c) Only three. Statements 1, 3 and 4 restate Article 243K; Statement 2 is false because the State Election Commissioner can be removed only in the manner and on the grounds of a High Court judge.

Statement 1 is correct: Article 243K(1) vests superintendence, direction and control of the preparation of electoral rolls for, and the conduct of, Panchayat elections in the SEC - which is why the Court said the ECI's SIR could not hold up local polls. Statement 2 is wrong: under the proviso to Article 243K(2), the State Election Commissioner shall not be removed except in like manner and on like grounds as a judge of a High Court; nor can his conditions of service be varied to his disadvantage after appointment. Statement 3 is correct: Article 243K(1) provides for appointment by the Governor. Statement 4 is correct: Article 243K(4) lets the State Legislature legislate on all matters relating to Panchayat elections, subject to the Constitution. Article 243ZA applies the same scheme to Municipalities. So three statements are correct.

Election Commission of India vs State Election Commission

Feature	ECI	SEC
Article	324	243K (Panchayats), 243ZA (Municipalities)
Elections covered	Parliament, State Legislatures, President, Vice-President	Panchayats and Municipalities
Appointed by	President	Governor
Removal of head	Like a Supreme Court judge	Like a High Court judge

Appointed by the Governor does not mean removable by the Governor. And the SEC is a separate constitutional body - the ECI has no mandate over panchayat or municipal elections.

Every explanation here was written to teach, not to justify an answer key.

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13 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): Where the Chief Election Commissioner differs from the other two Election Commissioners on a matter, the view of the Chief Election Commissioner prevails.

Reason (R): An Election Commissioner other than the Chief Election Commissioner cannot be removed from office except on the recommendation of the Chief Election Commissioner.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true ✓

Explanation

The correct answer is (D): A is false and R is true. In the multi-member Commission, decisions are taken unanimously as far as possible, and otherwise by majority; the CEC has no overriding vote.

Assertion is false: statute provides for majority decisions in the Election Commission, and the Supreme Court in T.N. Seshan v. Union of India (1995) upheld that the CEC and Election Commissioners act on an equal footing in decision-making. The 2026 debate turned on exactly this - two Commissioners' recorded objections, answered by the Commission saying its final decisions were taken unanimously. Reason is true: the first proviso to Article 324(5) gives the CEC the security of removal only like a Supreme Court judge, and the second proviso says other Election Commissioners can be removed only on the CEC's recommendation. Hence (D). (A) and (B) need A to be true; (C) reverses the truth values.

> The CEC's role in the removal of Election Commissioners (R) tempts candidates to infer that he is superior in decision-making (A). Removal protection and voting equality are separate questions.

14 **On 23 September 2026, a Division Bench of the Supreme Court asked the Chief Justice of India to consider placing the challenge to the Chief Election Commissioner and Other Election Commissioners (Appointment, Conditions of Service and Term of Office) Act, 2023 before a Constitution Bench. Under this Act, the Selection Committee that recommends appointments consists of:**

(a) The Prime Minister, the Chief Justice of India and the Leader of Opposition in the Lok Sabha

(b) The Prime Minister, the Speaker of the Lok Sabha and the Leader of Opposition in the Lok Sabha

(c) The Prime Minister, the Union Minister of Law and Justice and the Chief Justice of India or his nominee

(d) The Prime Minister, a Cabinet Minister nominated by him and the Leader of Opposition in the Lok Sabha ✓

Well prepared is not the same as competitive. Know which one you are.

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Explanation

The correct answer is (d). Under the 2023 Act, the President appoints the CEC and Election Commissioners on the recommendation of a Selection Committee of the Prime Minister (Chairperson), a Union Cabinet Minister nominated by the Prime Minister, and the Leader of Opposition in the Lok Sabha (or the leader of the single largest opposition party).

Option (a) is wrong: it describes the interim arrangement laid down in Anoop Baranwal v. Union of India (2023), which was to apply only until Parliament made a law. The 2023 Act replaced the CJI with a Cabinet Minister, and this is the core of the challenge now headed for a Constitution Bench. Option (b) is wrong: the Speaker sits on panels such as those for the Lokpal and the NHRC, not this one. Option (c) is wrong: the Law Minister chairs the Search Committee that shortlists names, and he is not on the Selection Committee; the CJI is not on either. Option (d) is correct for the reason in the verdict.

Who selects whom

Body	Selection panel
CEC and ECs (2023 Act)	PM, a Cabinet Minister nominated by PM, LoP (Lok Sabha)
Interim (Anoop Baranwal, 2023)	PM, LoP (Lok Sabha), CJI
Lokpal	PM, Speaker, LoP, CJI or nominee, eminent jurist
CVC	PM, Union Home Minister, LoP (Lok Sabha)

> Do not mix up the Anoop Baranwal interim panel (with the CJI) and the statutory panel (with a Cabinet Minister), or the Search Committee (headed by the Law Minister) and the Selection Committee.

15 **In September 2026, reports that two Election Commissioners had recorded objections to several decisions drew attention to how the multi-member Election Commission of India functions. With reference to the Election Commission of India, consider the following statements:**

1. The Constitution itself fixes the number of Election Commissioners, other than the Chief Election Commissioner, at two.
2. The superintendence, direction and control of elections to Panchayats and Municipalities is vested in the Commission under Article 324.
3. The conditions of service of the Chief Election Commissioner cannot be varied to his disadvantage after his appointment.
4. Before a general election to the Lok Sabha, the President may appoint Regional Commissioners after consultation with the Commission.

How many of the statements given above are correct?

(a) Only one

(b) Only two ✓

(c) Only three

(d) All four

Explanation

The correct answer is (b) Only two. Statements 3 and 4 are correct (Articles 324(5) and 324(4)). Statements 1 and 2 are wrong: the number of Election Commissioners is fixed by the President, and local body elections are outside Article 324.

Statement 1 is wrong: Article 324(2) says the Commission consists of the CEC and 'such number of other Election Commissioners, if any, as the President may from time to time fix'. The Commission has been three-member since 1993, but the Constitution does not fix that number. Statement 2 is wrong: Article 324 covers elections to Parliament, State Legislatures and the offices of President and Vice-President; Panchayat and Municipal elections are with State Election Commissions under Articles 243K and 243ZA. Statement 3 is correct: the second proviso to Article 324(5) protects the CEC's conditions of service. Statement 4 is correct: Article 324(4) provides for Regional Commissioners appointed by the President after consulting the Commission. So two statements are correct.

> 'Three-member Commission' is a practice under presidential orders and statute, not a constitutional command; and the ECI does not run local body polls.

16 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): Under the present legal framework, a person of Scheduled Caste origin who converts to Christianity ceases to be deemed a member of a Scheduled Caste.

Reason (R): Article 341 of the Constitution expressly restricts Scheduled Caste status to persons professing Hinduism, Sikhism or Buddhism.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false ✓

(d) A is false but R is true

Explanation

The correct answer is (C): A is true but R is false. The religion bar is in Clause 3 of the Constitution (Scheduled Castes) Order, 1950 - a presidential order under Article 341 - not in Article 341 itself.

Assertion is true: Clause 3 of the 1950 Order provides that no person professing a religion other than Hinduism, Sikhism (added 1956) or Buddhism (added 1990) shall be deemed a member of a Scheduled Caste; its validity is being examined by the Supreme Court (Ghazi Saaduddin v. State of Maharashtra and Centre for Public Interest Litigation v. Union of India, heard in October 2026). Reason is false: Article 341(1) only empowers the President, after consulting the Governor in the case of a State, to specify castes, races or tribes by public notification, and Article 341(2) lets Parliament alone vary the list by law. It names no religion. Hence (C); (A) and (B) need R to be true, and (D) needs A to be false.

> Distinguish the enabling Article (341) from the instrument made under it (the 1950 Order). Note also that there is no corresponding religion bar for Scheduled Tribes under Article 342.

17 On 11 October 2026, a Bench of the Supreme Court sat on a Sunday to hear habeas corpus petitions alleging illegal detention of protesters in Delhi. With reference to the writ of habeas corpus, which one of the following statements is correct?

(a) It can be issued against private individuals as well as against public authorities. ✓

(b) It can be sought only by the person detained, and not by a relative or friend on his behalf.

(c) Its enforcement remains suspended throughout a proclamation of National Emergency.

(d) Only the Supreme Court, and not a High Court, has the power to issue this writ.

Explanation

The correct answer is (a). Habeas corpus ('to have the body') lies against any person or authority that holds another in custody, whether a public authority or a private individual.

Option (a) is correct, as stated in the verdict. Option (b) is wrong: the rule of locus standi is relaxed for habeas corpus; a relative, friend or even a public-spirited person can move the petition, since the detenu may be unable to. Option (c) is wrong: after the 44th Amendment (1978), Article 359 cannot suspend the enforcement of Articles 20 and 21 even during a National Emergency, so habeas corpus remains available - overturning the effect of ADM Jabalpur (1976). Option (d) is wrong: High Courts issue it under Article 226, and their writ jurisdiction is wider than the Supreme Court's under Article 32.

Writs at a glance

Writ	Against private persons?	Purpose
Habeas corpus	Yes	Produce the detained person; test legality of detention
Mandamus	No	Command a public authority to perform its duty
Quo warranto	Only as to a public office	Question a claim to a public office
Certiorari / Prohibition	No	Control inferior courts and tribunals

Most writs (mandamus, certiorari, prohibition, quo warranto) do not lie against private persons; habeas corpus is the exception. Remember the post-44th Amendment protection of Articles 20 and 21.

The exam doesn't ask how much you studied. It asks where you stand among everyone who studied too.

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18 **On 15 October 2026, the Supreme Court held that the right to access and use the internet is a fundamental right of every individual, including children, under Article 21 read with Article 19(1)(a), and declined to back blanket age-based bans. Consider the following statements:**

1. The rights guaranteed under Article 19(1)(a) are available to all persons, including foreigners, within the territory of India.
2. A law restricting the freedom of speech and expression must relate to a ground enumerated in Article 19(2), and the restriction must be reasonable.
3. 'Protection of children' is not one of the grounds expressly listed in Article 19(2).

Which of the statements given above is/are correct?

(a) 1 and 2 only	**(b) 2 and 3 only ✓**
(c) 1 and 3 only	(d) 1, 2 and 3

Explanation

The correct answer is (b) 2 and 3 only. Article 19 rights belong only to citizens, while Article 21 protects every person; and any restriction on Article 19(1)(a) must fit one of the eight grounds in Article 19(2) - which do not expressly include protection of children.

Statement 1 is wrong: Article 19 guarantees freedoms only to citizens; that is why the Court anchored the right for 'every individual' in Article 21 (life and personal liberty, available to all persons) read with Article 19(1)(a). Statement 2 is correct: Article 19(2) allows only 'reasonable restrictions' on the listed grounds, and since Shreya Singhal (2015) the Court has insisted that restrictions be closely tied to those grounds. Statement 3 is correct: the grounds are sovereignty and integrity of India, security of the State, friendly relations with foreign States, public order, decency or morality, contempt of court, defamation, and incitement to an offence. Child-protection measures must therefore be justified through grounds such as decency or morality - which is why the Court preferred targeted, proportionate safeguards (parental consent, child-mode accounts) over blanket bans.

> 'Every individual' in the judgment comes from Article 21, not Article 19. Article 19 is citizens-only; Articles 14, 20, 21 and 25 extend to all persons.

19 **Consider the following events of sixteenth-century north India:**

1. Akbar's 'Mahzar' declaration
2. Battle of Chausa
3. Second Battle of Panipat
4. Battle of Khanwa

What is the correct chronological order of these events?

(a) 2 - 4 - 3 - 1	(b) 4 - 3 - 2 - 1
(c) 2 - 4 - 1 - 3	**(d) 4 - 2 - 3 - 1 ✓**

Explanation

The correct answer is (d) 4 - 2 - 3 - 1: Khanwa (1527) → Chausa (1539) → Second Battle of Panipat (1556) → Mahzar (1579).

OPTION-WISE ANALYSIS

• Option (a) 2-4-3-1 - WRONG: places Chausa (1539) before Khanwa (1527).
• Option (b) 4-3-2-1 - WRONG: places Panipat II (1556) before Chausa (1539).
• Option (c) 2-4-1-3 - WRONG: wrong at both ends; puts Chausa first and the Mahzar (1579) before Panipat II.
• Option (d) 4-2-3-1 - CORRECT.

EVENT NOTES

• Battle of Khanwa (March 1527): Babur defeated Rana Sanga of Mewar, who led a Rajput confederacy. Babur declared it a jihad, took the title 'Ghazi', and gave up wine. Coming after the First Battle of Panipat (1526, against Ibrahim Lodi), it secured Mughal rule in north India.
• Battle of Chausa (1539): Sher Khan (Sher Shah Suri) defeated Humayun. The decisive Battle of Kanauj / Bilgram (1540) then drove Humayun into exile; he regained Delhi only in 1555.
• Second Battle of Panipat (5 November 1556): Bairam Khan, for the young Akbar, defeated Hemu (Hemachandra Vikramaditya), the general of the Sur ruler Adil Shah.
• Mahzar (1579): a declaration drafted by Shaikh Mubarak and signed by leading ulema, making Akbar the final arbiter (Imam-i-Adil) where religious scholars disagreed - a step towards Sulh-i-kul. It came after the Ibadat Khana debates at Fatehpur Sikri (from 1575) and before the Din-i-Ilahi (1582).

TIMELINE FOR REVISION

1526 Panipat I → 1527 Khanwa → 1529 Ghaghra → 1539 Chausa → 1540 Kanauj → 1540-45 Sher Shah (Rupiya, Grand Trunk Road, land measurement) → 1555 Humayun's return → 1556 Panipat II → 1565 Talikota (Deccan) → 1575 Ibadat Khana → 1576 Haldighati → 1579 Mahzar → 1582 Din-i-Ilahi.

> Babur's two famous victories are a year apart: Panipat I (1526, Lodi) and Khanwa (1527, Rana Sanga). Humayun lost twice to Sher Shah: Chausa (1539) and Kanauj (1540).

20 **In October 2026, the ASI recovered the missing head of the Vishnu image of the Javari temple at Khajuraho. With reference to the Khajuraho group of monuments, consider the following statements:**

1. Most of the temples were built under the Chandela rulers between about 950 and 1050 CE.
2. The group includes both Hindu and Jain temples.
3. The Kandariya Mahadeva temple, the largest in the group, is dedicated to Vishnu.
4. The temples follow the Dravida style, with pyramidal vimanas and gopurams.

How many of the statements given above are correct?

(a) Only one	**(b) Only two ✓**
(c) Only three	(d) All four

A limited number of places. One honest question: are you holding yours?

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Explanation

The correct answer is (b) Only two. Statements 1 and 2 are correct. Kandariya Mahadeva is a Shiva temple, and Khajuraho is a classic example of the Nagara (north Indian) style, not the Dravida style.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. The Chandelas (Chandratreyas) of Bundelkhand built most of the temples between c. 950 and 1050 CE. Of about 85 temples, roughly 25 survive. The group became a UNESCO World Heritage Site in 1986.

• Statement 2 - CORRECT. Besides the Western group of Shaiva and Vaishnava temples, there is an Eastern Jain group (Parshvanatha, Adinatha, Shantinatha), showing Chandela tolerance of several faiths.

• Statement 3 - WRONG. Kandariya Mahadeva (c. 1030 CE, attributed to Vidyadhara) is dedicated to Shiva. The Lakshmana temple (c. 954 CE, Yashovarman) is Vaishnava (Vaikuntha Vishnu). The Javari temple, in the news, is also Vaishnava (late 11th century).

• Statement 4 - WRONG. Khajuraho has curvilinear shikharas with clusters of smaller spires (urushringas) - the Nagara style. Gopurams and pyramidal vimanas are Dravida features (e.g. the Brihadeshwara at Thanjavur).

TOPIC REVISION - FEATURES OF KHAJURAHO TEMPLES

• Built on a high platform (jagati), with no enclosing wall.

• Plan along an east-west axis: ardhamandapa → mandapa → mahamandapa → antarala → garbhagriha, often with an ambulatory (sandhara plan).

• Rising roofs build up to the main shikhara like a mountain range (an evocation of Mount Kailasha / Meru).

• Rich sculpture: deities, apsaras / surasundaris, daily life, and a small share of erotic panels (mithunas). The erotic panels are only a fraction of the sculpture.

• Material: fine-grained sandstone (granite for a few early temples such as the Chausath Yogini).

NAGARA vs DRAVIDA vs VESARA

• Nagara: curvilinear shikhara, no gopurams; sub-schools include Odisha (rekha deul) and Khajuraho / Solanki (central and western India).

• Dravida: pyramidal vimana, gopurams, enclosure walls, temple tank (Pallavas, Cholas, Pandyas).

• Vesara: mixed features (later Chalukyas, Hoysalas).

Nagara vs Dravida temple style

Feature	Nagara (e.g. Khajuraho)	Dravida (e.g. Thanjavur)
Superstructure	Curvilinear shikhara	Pyramidal, tiered vimana
Gateway	No gopuram	Gopurams, often taller than the vimana in later temples
Enclosure	Usually none; raised platform	Prakara walls; temple tank
Patrons	Chandelas, Solankis, Gangas	Pallavas, Cholas, Pandyas, Nayakas

> Khajuraho is Nagara and has no gopurams. Do not assume every 'big' temple is Shaiva or Vaishnava: Lakshmana = Vishnu, Kandariya = Shiva, Parshvanatha = Jain.

21 **A stone inscription reported in September 2026 from a hilltop shrine at Penukonda (Andhra Pradesh) has been dated by local historians to the reign of Bukka Raya I. With reference to the Vijayanagara Empire, consider the following statements:**

1. It was founded in 1336 by Harihara and Bukka of the Sangama dynasty.
2. Krishnadeva Raya, author of the Telugu work Amuktamalyada, belonged to the Tuluva dynasty.
3. After the Battle of Talikota (1565), Penukonda became a capital of the Aravidu rulers.

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3 ✓

The exam ranks everyone together, whatever language they write in. So does this.

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Explanation

The correct answer is (d) 1, 2 and 3. All three statements are correct. The empire passed through four dynasties - Sangama, Saluva, Tuluva and Aravidu - and after the 1565 sack of Vijayanagara (Hampi) the Aravidus ruled from Penukonda and later from Chandragiri and Vellore.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. Harihara I and Bukka I founded the kingdom in 1336 on the Tungabhadra, with tradition crediting the guidance of the sage Vidyaranya. Bukka I ruled c. 1356-1377 and extended Vijayanagara power southwards, including the conquest of the Madurai Sultanate (completed under his son Kumara Kampana).

• Statement 2 - CORRECT. Krishnadeva Raya (1509-1529) of the Tuluva dynasty wrote Amuktamalyada in Telugu (on the Alvar saint Andal) and Jambavati Kalyanam in Sanskrit. His court had the 'Ashtadiggajas', including Allasani Peddana. He defeated the Gajapati of Odisha and the Bahmani successor states and captured Raichur (1520).

• Statement 3 - CORRECT. The combined Deccan Sultanates (Bijapur, Ahmadnagar, Golconda, Bidar) defeated Aliya Rama Raya at Talikota (Rakshasi-Tangadi) in 1565, and the capital was sacked. Tirumala of the Aravidu dynasty moved the capital to Penukonda; later rulers used Chandragiri and Vellore.

TOPIC REVISION - VIJAYANAGARA

• Dynasties: Sangama (1336-1485) → Saluva (1485-1505) → Tuluva (1505-1570) → Aravidu (1570 onwards).

• Administration: the Amara-nayaka system (military commanders given territories, the 'amaram', in return for troops and tribute) - an antecedent of the later Nayaka kingdoms of Madurai, Thanjavur and Gingee.

• Architecture: the 'Vijayanagara style' - raya gopurams, kalyana mandapas, composite pillars with yalis (Vitthala and Virupaksha temples, Hampi; the Hampi group became a UNESCO site in 1986).

• Foreign accounts: Niccolo de Conti (Italian, Deva Raya I), Abdur Razzaq (Persian, Deva Raya II), Domingo Paes and Fernao Nuniz (Portuguese, 16th century).

• Rivals: the Bahmani kingdom (founded 1347) and its successor states, over the Raichur doab.

NOTE ON THE NEWS

• The Penukonda inscription was read and dated by local historians and reported in the press; it has not yet been published by the ASI's Epigraphy Branch. Use it only as a pointer to the established history above.

Dynasties of Vijayanagara

Dynasty	Period	Notable ruler / event
Sangama	1336-1485	Harihara I, Bukka I; Deva Raya II
Saluva	1485-1505	Saluva Narasimha
Tuluva	1505-1570	Krishnadeva Raya; Talikota (1565)
Aravidu	1570 onwards	Tirumala; capital Penukonda, then Chandragiri

Penukonda is associated with post-Talikota Aravidu rule, but Vijayanagara presence there is older, as the Sangama-era record shows. Krishnadeva Raya is Tuluva, not Saluva or Sangama.

22 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): Under the Government of India Act, 1919, provincial subjects were divided into 'reserved' and 'transferred' categories.

Reason (R): The Government of India Act, 1919 introduced dyarchy at the Centre.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false ✓

(d) A is false but R is true

Explanation

The correct answer is (C): A is true but R is false. The 1919 Act introduced dyarchy in the PROVINCES; dyarchy at the Centre was provided only by the Government of India Act, 1935, and that part never came into operation.

ASSERTION - TRUE

• Under the Montagu-Chelmsford Reforms (1919 Act), provincial subjects were split into:
- Reserved subjects (law and order, police, land revenue, irrigation, finance), administered by the Governor with his Executive Council and not responsible to the legislature;
- Transferred subjects (education, local self-government, public health, agriculture), administered by Indian ministers responsible to the legislative council.
• This dual system is called dyarchy (from the Greek for 'rule of two').

REASON - FALSE

• At the Centre, the 1919 Act made the legislature bicameral (Council of State and Legislative Assembly) with an elected majority, but the Governor-General's Executive Council was not responsible to it. There was no central dyarchy.
• The 1935 Act provided for dyarchy at the Centre within a proposed All-India Federation, which never came into being because the princely states did not join. Provincial autonomy under the 1935 Act began in 1937.

TOPIC REVISION - OTHER FEATURES OF THE 1919 ACT

• Montagu's Declaration (20 August 1917): goal of 'progressive realisation of responsible government'.
• Separate electorates extended to Sikhs, Indian Christians, Anglo-Indians and Europeans.
• Limited franchise based on property and tax; a High Commissioner for India in London; a Public Service Commission set up in 1926.
• Provincial budgets separated from the central budget.
• A statutory commission to review it after ten years - the Simon Commission (appointed 1927).

CHRONOLOGY OF CONSTITUTIONAL DEVELOPMENTS

1861 Councils Act (portfolio system) → 1892 (indirect election) → 1909 Morley-Minto (separate electorates for Muslims) → 1919 Montford (provincial dyarchy) → 1935 (provincial autonomy; federal dyarchy on paper) → 1947 Independence Act.

1919 Act vs 1935 Act

Feature	GoI Act 1919	GoI Act 1935
Provinces	Dyarchy (reserved / transferred)	Provincial autonomy (from 1937)
Centre	Bicameral; no dyarchy	Dyarchy proposed; never implemented
Federation	None	All-India Federation proposed; not formed
New institutions	Central Public Service Commission (1926)	Federal Court (1937); provincial PSCs

1919 = dyarchy in provinces; 1935 = provincial autonomy plus dyarchy at the Centre (never implemented). Swapping these is a classic Prelims trap.

Write in your language. Be ranked against everyone. Nothing here is measured in a smaller room.

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23 A programme in Punjab on 28 September 2026 commemorated the birth anniversary of Bhagat Singh. With reference to Bhagat Singh and his associates, which one of the following statements is correct?

(a) The HSRA was set up at Feroz Shah Kotla in 1928, adding 'Socialist' to the earlier HRA's name. ✓

(b) Bhagat Singh and B.K. Dutt threw bombs in the Central Legislative Assembly against the Rowlatt Act.

(c) Bhagat Singh, Sukhdev and Rajguru were executed in 1931 for their role in the Kakori train action.

(d) Chandra Shekhar Azad was arrested in 1929 and hanged in Lahore Central Jail along with Bhagat Singh.

Explanation

The correct answer is (a). In September 1928, at a meeting at Feroz Shah Kotla in Delhi, the Hindustan Republican Association (HRA, founded 1924) was renamed the Hindustan Socialist Republican Association (HSRA), reflecting the socialist ideas of Bhagat Singh and his comrades.

OPTION-WISE ANALYSIS

• Option (a) - CORRECT, for the reason in the verdict. Chandra Shekhar Azad became its commander-in-chief.

• Option (b) - WRONG. The bombs (8 April 1929) were thrown to protest against the Public Safety Bill and the Trade Disputes Bill. They were designed not to kill, and leaflets declared 'it takes a loud voice to make the deaf hear'. The Rowlatt Act was a 1919 law.

• Option (c) - WRONG. The three were hanged on 23 March 1931 in the Lahore Conspiracy Case, for the killing of the police officer J.P. Saunders (December 1928) - itself a reprisal for the fatal assault on Lala Lajpat Rai during the anti-Simon Commission protest. The Kakori train action (August 1925) was an HRA operation; Ram Prasad Bismil, Ashfaqulla Khan, Rajendra Lahiri and Roshan Singh were executed for it in 1927.

• Option (d) - WRONG. Azad was never captured. He died in an encounter with the police at Alfred Park, Allahabad, on 27 February 1931.

TOPIC REVISION - THE SECOND PHASE OF REVOLUTIONARY ACTIVITY (1920s-30s)

• Background: disillusionment after the withdrawal of Non-Cooperation (1922); influence of socialism and the Russian Revolution.

• North India: HRA (1924, Sachindranath Sanyal and others) → HSRA (1928). Bhagat Singh's writings include 'Why I am an Atheist'; he popularised the slogan 'Inquilab Zindabad'. He had earlier founded the Naujawan Bharat Sabha (1926).

• Jatin Das died after a 63-day hunger strike in Lahore jail (1929).

• Bengal: Surya Sen's Chittagong Armoury Raid (April 1930); women revolutionaries Pritilata Waddedar and Kalpana Dutt.

• Gandhi-Irwin Pact (March 1931): the Congress was criticised for not securing commutation of the death sentences.

> Assembly bomb = Public Safety and Trade Disputes Bills (1929), not the Rowlatt Act. Execution = Saunders / Lahore Conspiracy Case, not Kakori. Azad died at Allahabad, not on the gallows.

24 **On India's 80th Independence Day (15 August 2026), 'Vande Mataram' was sung from the ramparts of the Red Fort for the first time, as part of the year-long commemoration of 150 years of the song, which closes in November 2026. Consider the following statements:**

1. It was composed by Bankim Chandra Chattopadhyay and later included in his novel Anandamath.
2. It was sung by Rabindranath Tagore at the Calcutta session of the Indian National Congress in 1896.
3. On 24 January 1950, the Constituent Assembly adopted it as the National Anthem of India.

Which of the statements given above is/are correct?

(a) 1 and 2 only ✓	(b) 2 and 3 only
(c) 1 and 3 only	(d) 1, 2 and 3

The costliest mistake in this exam isn't a wrong answer. It's a year you can't get back.

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Explanation

The correct answer is (a) 1 and 2 only. Statement 3 is wrong: on 24 January 1950 the President of the Constituent Assembly, Dr Rajendra Prasad, announced 'Jana Gana Mana' as the National Anthem and said that 'Vande Mataram', the National Song, would be honoured equally with it.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. Bankim Chandra composed the song (the Government dates it to 7 November 1875) in Sanskritised Bengali. It was included in Anandamath (1882), a novel set against the Sannyasi rebellion in late 18th-century Bengal.

• Statement 2 - CORRECT. Tagore set it to music and sang it at the 1896 Calcutta session of the INC (President: Rahimtulla M. Sayani).

• Statement 3 - WRONG. Jana Gana Mana (by Tagore, first sung at the 1911 Calcutta session) became the National Anthem; Vande Mataram is the National Song. The Constitution itself mentions neither; Article 51A(a) asks citizens to respect the National Flag and the National Anthem.

TOPIC REVISION - VANDE MATARAM IN THE FREEDOM STRUGGLE

• Swadeshi Movement (1905-08): against the Partition of Bengal (Curzon, 1905), 'Vande Mataram' became the movement's rallying cry. Bipin Chandra Pal later ran an English daily named 'Bande Mataram', with Aurobindo Ghose as a key writer.

• The government tried to curb its use - for example, the Carlyle Circular (1905) targeted students' participation in political agitation.

• Madame Bhikaji Cama's flag hoisted at Stuttgart (1907) bore the words 'Vande Mataram'.

• In 1937 the Congress Working Committee decided that the first two stanzas would be sung at national gatherings, in view of objections raised to later stanzas.

CURRENT-AFFAIRS LINK

• The 150-year commemoration began on 7 November 2025 and was organised in phases, with a closing week of 1-7 November 2026.

National Song vs National Anthem

Feature	Vande Mataram	Jana Gana Mana
Author	Bankim Chandra Chattopadhyay	Rabindranath Tagore
Status	National Song	National Anthem
First sung at INC	1896, Calcutta	1911, Calcutta
Adopted / announced	24 January 1950	24 January 1950

National Song (Vande Mataram, Bankim) ≠ National Anthem (Jana Gana Mana, Tagore). Tagore sang Vande Mataram in 1896, while Jana Gana Mana was first sung in 1911 - both at Calcutta sessions.

25 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): The State Emblem of India, adopted in January 1950, reproduces the Sarnath Lion Capital with all four lions visible.

Reason (R): The Sarnath pillar was erected by Ashoka at the place where the Buddha is believed to have delivered his first sermon.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true ✓

A test tells you where you stand. Daily practice is how you move.

Both are in the Testogram app.

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Explanation

The correct answer is (D): A is false, but R is true. The State Emblem is an adaptation of the Sarnath Lion Capital in which only three of the four lions are visible; the fourth is hidden from view. Ashoka's pillar does stand at the site of the Buddha's first sermon.

ASSERTION - FALSE

• The emblem was adopted on 26 January 1950. In the two-dimensional emblem only three lions are seen. The abacus below shows the Dharma Chakra in the centre, a bull on the right and a galloping horse on the left. The bell-shaped lotus base of the original is left out.
• The motto 'Satyameva Jayate' (from the Mundaka Upanishad) is written below in Devanagari.
• Use of the emblem is regulated by the State Emblem of India (Prohibition of Improper Use) Act, 2005.

REASON - TRUE

• Ashoka's pillar marks the deer park (Rishipatana / Isipatana Mrigadava) at Sarnath where the Buddha delivered the 'Dhammachakkappavattana' (turning of the wheel of Dharma) to his first five disciples.
• Since A is false, the question of R explaining A does not arise; the answer is (D).

TOPIC REVISION - MAURYAN PILLARS AND SARNATH

• Ashokan pillars: monolithic Chunar sandstone with a highly polished finish (the 'Mauryan polish'), topped by animal capitals (Sarnath - four addorsed lions; Rampurva - bull; Lauriya-Nandangarh - single lion; Sankissa - elephant).
• The Sarnath pillar carries an edict warning against schism in the Sangha (the 'Schism Edict').
• Other Sarnath monuments: the Dhamek Stupa (largely Gupta period), the Dharmarajika Stupa and the Mulagandhakuti Vihara. The site was patronised by the Mauryas, Kushanas and Guptas; the Gupta 'Sarnath school' produced the famous seated Buddha in dharmachakra-pravartana mudra.
• The Lion Capital is kept in the ASI Sarnath Museum (1904), India's earliest site museum.
• The Ancient Buddhist Site of Sarnath was inscribed as India's 45th UNESCO World Heritage Site on 25 July 2026 (48th session, Busan).

FOUR GREAT EVENTS OF THE BUDDHA'S LIFE

Birth - Lumbini (Nepal) → Enlightenment - Bodh Gaya → First sermon - Sarnath → Mahaparinirvana - Kushinagar.

> 'Four lions on the capital, three in the emblem.' Also do not confuse Sarnath (first sermon) with Kushinagar (Mahaparinirvana) or Bodh Gaya (enlightenment).

26 **Kashipur, where fresh excavations began in October 2026, was identified by Alexander Cunningham with a place described by a Chinese Buddhist pilgrim. Which one of the following statements correctly describes that pilgrim, Xuanzang?**

(a) He visited India during the reign of Chandragupta II and described the city of Pataliputra.

(b) He studied at Nalanda and attended the assemblies organised by Harsha at Kanauj and Prayag. ✓

(c) He came by sea and studied Sanskrit at Srivijaya before reaching the monastery at Nalanda.

(d) He served as an ambassador at the Mauryan court and wrote an account of India called Indica.

Explanation

The correct answer is (b). Xuanzang (Hiuen Tsang) travelled in India from about 629 to 645 CE, studied at Nalanda under the abbot Shilabhadra, and attended Harsha's religious assembly at Kanauj and the quinquennial distribution at Prayag. His account is the Si-yu-ki (Records of the Western World).

OPTION-WISE ANALYSIS

• Option (a) - WRONG. This describes Faxian (Fa-hien), who visited c. 399-414 CE during the reign of Chandragupta II (Vikramaditya) and praised the peace and prosperity of Gupta India and the charitable institutions of Pataliputra.

• Option (b) - CORRECT, for the reasons in the verdict.

• Option (c) - WRONG. This describes Yijing (I-tsing), who came by sea in the late 7th century (c. 671-695 CE), studied at Srivijaya (Sumatra) on the way, and spent about ten years at Nalanda.

• Option (d) - WRONG. This describes Megasthenes, the Seleucid ambassador to Chandragupta Maurya's court at Pataliputra. His Indica survives only in quotations by later Greek and Roman writers.

TOPIC REVISION - XUANZANG AND HARSHA'S AGE

• Route: overland via Central Asia, both ways; he visited Kashmir, Mathura, Kanauj, Prayag, Sarnath, Bodh Gaya and Nalanda, and went south as far as Kanchipuram.

• Called the 'Prince of Pilgrims'. He took back many Buddhist manuscripts and translated them in China.

• His account describes Harsha (606-647 CE) as a patron of Mahayana Buddhism, mentions Harsha's defeat by Pulakeshin II of the Chalukyas on the Narmada, and describes Nalanda's learning and discipline.

• Harsha's contemporary sources: Banabhatta's Harshacharita, and the plays Nagananda, Ratnavali and Priyadarshika attributed to Harsha.

• Nalanda: founded under the Guptas (Kumaragupta I is usually credited), it flourished under Harsha and the Palas, and was a UNESCO World Heritage Site from 2016 (Nalanda Mahavihara).

TIMELINE OF FOREIGN OBSERVERS

Megasthenes (c. 300 BCE, Maurya) → Faxian (c. 400 CE, Gupta) → Xuanzang (629-645 CE, Harsha) → Yijing (late 7th century) → Al-Biruni (11th century, Mahmud of Ghazni).

Foreign travellers to early India

Traveller	Period / ruler	Work or note
Megasthenes	Chandragupta Maurya	Indica (fragments)
Faxian	Chandragupta II	Fo-kuo-ki
Xuanzang	Harsha	Si-yu-ki; Nalanda; Kanauj assembly
Yijing	Late 7th century	Sea route; Nalanda; Srivijaya

Faxian = Gupta (Chandragupta II); Xuanzang = Harsha; Yijing = sea route and Srivijaya; Megasthenes = Maurya. The Kanauj assembly is the identifying tag for Xuanzang.

27 **In October 2026, the Archaeological Survey of India resumed excavation at the Dronasagar mound in Kashipur (Uttarakhand), a site whose pottery sequence begins with the Painted Grey Ware (PGW). With reference to the Painted Grey Ware culture, consider the following statements:**

1. Its sites are concentrated mainly in the Indo-Gangetic divide and the upper Ganga plain.
2. Iron objects have been found at several Painted Grey Ware sites.
3. It is the characteristic pottery of the urban phase of the Mature Harappan civilisation.
4. Painted Grey Ware was found at Hastinapur in the excavations conducted by B.B. Lal in the 1950s.

How many of the statements given above are correct?

(a) Only one

(b) Only two

(c) Only three ✓

(d) All four

If you only find out on result day, you found out too late.

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Explanation

The correct answer is (c) Only three. Statements 1, 2 and 4 are correct. Statement 3 is wrong: PGW belongs to the post-Harappan Iron Age of the Ganga-Yamuna region (broadly the first millennium BCE), not to the Mature Harappan period (c. 2600-1900 BCE).

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. PGW sites cluster in the Indo-Gangetic divide (Haryana, Punjab), the Sutlej basin and the upper Ganga-Yamuna doab (western UP, Delhi). Delhi-region sites include Purana Qila and Salimgarh; others include Hastinapur, Ahichchhatra, Atranjikhera, Bhagwanpura and Mathura.

• Statement 2 - CORRECT. Iron arrowheads, spearheads, sickles and nails occur at sites such as Atranjikhera, Jakhera and Hastinapur. This is why PGW is treated as an Iron Age culture.

• Statement 3 - WRONG. Harappan pottery is red ware painted in black. PGW is fine, wheel-made grey pottery with geometric designs in black or chocolate paint, and it appears centuries after the Harappan cities declined.

• Statement 4 - CORRECT. B.B. Lal excavated Hastinapur (1950-52) and found PGW in a distinct level. He also studied PGW at other places named in the Mahabharata. That link is a scholarly hypothesis, not proof that the epic's events happened.

TOPIC REVISION - THE PAINTED GREY WARE CULTURE

• Date: broadly c. 1200/1100-600/500 BCE (estimates vary). It is followed by the Northern Black Polished Ware (NBPW) of the age of second urbanisation.

• Pottery: thin, well-fired grey ware, mostly bowls and dishes, painted with lines, dots, circles and swastikas.

• Life: villages of wattle-and-daub or mud houses, rice and barley cultivation, cattle, horse bones at some sites, glass beads and early iron.

• Literary link: its area and period roughly match the region of the later Vedic texts (Kuru-Panchala). This is a broad correlation that historians use with caution.

CURRENT-AFFAIRS LINK - KASHIPUR (UTTARAKHAND)

• Alexander Cunningham identified Kashipur with 'Govisana', a place described by the Chinese pilgrim Xuanzang (who travelled in India 629-645 CE).

• Earlier ASI digs (1939-40, 1965-66, 1970-71) found a temple complex from the Gupta to the early medieval period, and pottery from PGW times onward. Local tradition links the site to Dronacharya. Finding remains of an archaeological culture does not by itself prove that an epic event took place.

SEQUENCE OF POTTERY CULTURES (NORTH INDIA)

Harappan red ware → Ochre Coloured Pottery (OCP) → Black-and-Red Ware → Painted Grey Ware → NBPW.

North Indian pottery cultures at a glance

Culture	Approx. date	Key feature
Ochre Coloured Pottery	c. 2000-1500 BCE	Ochre wash; Copper Hoards
Painted Grey Ware	c. 1200-600 BCE	Grey, painted; early iron; later Vedic region
Northern Black Polished Ware	c. 700-200 BCE	Glossy black; second urbanisation, Mauryas

Do not confuse PGW (Iron Age, Ganga-Yamuna, grey) with NBPW (glossy black, later, linked to the Mahajanapadas and Mauryas) or with OCP (Copper Hoard-associated, pre-PGW). Also, an 'epic-era' label in the news is an interpretation, not an established fact.

28 **In August 2026, Banaras Hindu University reopened about 22 boxes of finds from its 1957-69 excavations at Rajghat, the site of ancient Varanasi near the Ganga-Varuna confluence. With reference to ancient Kashi and its period, consider the following statements:**

1. Kashi is listed among the sixteen Mahajanapadas in the Buddhist text Anguttara Nikaya.
2. Northern Black Polished Ware is associated with the phase of 'second urbanisation' in the Ganga valley.
3. Varanasi served as the capital of the Magadha Mahajanapada before the capital moved to Rajagriha.

Which of the statements given above is/are correct?

(a) 1 and 2 only ✓

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Practise daily, and the test stops being a surprise.

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Explanation

The correct answer is (a) 1 and 2 only. Kashi, with its capital at Varanasi, was one of the sixteen Mahajanapadas, and NBPW marks the second urbanisation in which cities like Varanasi grew. Statement 3 is wrong: Magadha's early capital was Rajagriha (Girivraja), and it later moved to Pataliputra.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. The Anguttara Nikaya lists sixteen Mahajanapadas: Anga, Magadha, Kashi, Kosala, Vajji, Malla, Chedi, Vatsa, Kuru, Panchala, Matsya, Shurasena, Ashmaka, Avanti, Gandhara and Kamboja. Kashi's capital was Varanasi. The Jaina Bhagavati Sutra gives a different list.

• Statement 2 - CORRECT. NBPW (c. 700-200 BCE) is a glossy, luxury tableware. It is the marker of the 'second urbanisation' (c. 6th century BCE onward) - the rise of cities such as Rajagriha, Shravasti, Kaushambi, Ujjain and Varanasi, with fortifications, punch-marked coins and crafts.

• Statement 3 - WRONG. Magadha's capital was Rajagriha (Girivraja), ringed by hills, under Bimbisara and Ajatashatru. Under Udayin it shifted to Pataliputra (at the Ganga-Son confluence). Varanasi was never Magadha's capital.

TOPIC REVISION - KASHI AND THE RISE OF MAGADHA

• Kashi was prized for its textiles and trade and was contested by Kosala and Magadha. Tradition records Bimbisara receiving a Kashi village as dowry on marrying a Kosalan princess. Kashi later passed into Magadhan control in the conflicts of Ajatashatru's time.

• Magadha's rise: fertile Ganga plains, iron ores of south Bihar, a strategic river network, elephants and able rulers. Dynasties in sequence: Haryanka → Shishunaga → Nanda → Maurya.

• Sarnath, close to Varanasi, is where the Buddha gave his first sermon (Dhammachakkappavattana). The Ancient Buddhist Site of Sarnath was inscribed on the UNESCO World Heritage List in July 2026.

CURRENT-AFFAIRS LINK - RAJGHAT

• Rajghat came to light in 1939-40 during railway work; ASI-BHU excavations ran from 1957 to 1969 under A.K. Narain. Seals bearing the name 'Varanasi' helped identify the site.

• Its lowest layers (pre-NBPW) are dated to about 800 BCE. Varanasi is therefore among India's oldest continuously inhabited cities, which the scientific study of the reopened material may refine.

Selected Mahajanapadas and capitals

Mahajanapada	Capital	Note
Kashi	Varanasi	Textiles; contested by Kosala and Magadha
Kosala	Shravasti	Ruler Prasenajit
Magadha	Rajagriha, later Pataliputra	Became the paramount power
Vatsa	Kaushambi	Ruler Udayana
Avanti	Ujjayini / Mahishmati	Ruler Pradyota

Varanasi = Kashi; Rajagriha and Pataliputra = Magadha; Shravasti and Ayodhya/Saketa = Kosala; Kaushambi = Vatsa; Ujjain/Mahishmati = Avanti. Mismatching capitals and Mahajanapadas is a favourite UPSC trap.

Stamina is a skill. Marathon is where you build it before the exam asks for it.

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29 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): Kabir criticised idol worship, empty ritual and caste distinctions, and stressed devotion to a formless (nirguna) God.

Reason (R): According to a widely held tradition, Kabir was a disciple of the Vaishnava teacher Ramananda.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A ✓

(c) A is true but R is false

(d) A is false but R is true

Explanation

The correct answer is (B): both A and R are true, but R does not explain A. Kabir's teaching comes from the nirguna 'sant' tradition and his own critique of both Hindu and Islamic orthodoxy. Being linked by tradition to Ramananda, a teacher of saguna Rama-bhakti, does not explain it.

ASSERTION - TRUE

• Kabir (c. 15th-early 16th century, Varanasi; a weaver - julaha) mocked idol worship, pilgrimage, ritual bathing, fasting and namaz performed without inner devotion, and rejected caste hierarchy.
• He described God as formless and used names from both traditions - Rama, Hari, Allah, Sahib.
• His verses (sakhis, padas / shabads) are collected in the Bijak (Kabir Panth, Varanasi), the Kabir Granthavali (Rajasthan) and the Guru Granth Sahib (compiled 1604).

REASON - TRUE (AS TRADITION)

• Hagiography makes Kabir a disciple of Ramananda. Historians note the chronology is uncertain, so this is a tradition, not an established fact - which is why R is worded 'according to tradition'.
• Ramananda is linked with Rama-bhakti and opened his following to all castes. Other disciples named by tradition include Ravidas and Sena.

WHY R DOES NOT EXPLAIN A

• Ramananda's Vaishnavism was saguna (devotion to Rama in personal form); Kabir's emphasis was nirguna. A teacher-disciple link cannot account for the core of Kabir's ideas.

TOPIC REVISION - SAGUNA vs NIRGUNA BHAKTI

• Saguna (God with attributes): Tulsidas (Ramcharitmanas), Surdas (Sursagar), Mirabai, Chaitanya, Vallabhacharya; the earlier Alvars of Tamil Nadu.
• Nirguna (formless God): Kabir, Guru Nanak, Ravidas, Dadu Dayal.
• Common features: use of regional languages, a guru's importance, inclusiveness across caste, and devotion over ritual.

Saguna vs Nirguna Bhakti

Aspect	Saguna	Nirguna
Idea of God	Personal, with form (Rama, Krishna)	Formless, beyond attributes
Representatives	Tulsidas, Surdas, Mirabai, Chaitanya	Kabir, Guru Nanak, Ravidas, Dadu
Attitude to idols	Image worship accepted	Image worship rejected

> Two true statements about the same person are not automatically cause and effect. Also mark the difference between saguna (Tulsidas, Surdas, Mira) and nirguna (Kabir, Nanak) saints.

30 **With reference to the major schools of sculpture of early historic India (c. 1st century BCE - 3rd century CE), consider the following statements:**

1. The Gandhara school, using mainly grey schist, shows strong Hellenistic influence, as in the wavy hair and draped robes of the Buddha.
2. The Mathura school, using spotted red sandstone, produced images of Buddhist, Jain and Brahmanical deities.
3. The Amaravati school flourished in the north-west under the patronage of the Kushanas and used black basalt.

Which of the statements given above is/are correct?

(a) 1 and 2 only ✓

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Explanation

The correct answer is (a) 1 and 2 only. Statement 3 is wrong: the Amaravati school flourished in the Krishna-Godavari region of Andhra under the Satavahanas and later the Ikshvakus, and its medium was white or greenish limestone (often called 'Palnad marble'), not black basalt.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. Gandhara (north-west - Taxila, Peshawar, Bamiyan) blended Indian Buddhist themes with Greco-Roman style: realistic anatomy, heavy drapery in folds, wavy or curly hair, sometimes a moustache. Media: blue-grey schist, and stucco/lime plaster in the later phase.

• Statement 2 - CORRECT. Mathura used the local spotted red sandstone (from Sikri). It produced Buddhas and Bodhisattvas, Jain tirthankaras and Hindu deities, and royal portrait statues of the Kushanas (e.g. the headless Kanishka from Mat). Style: indigenous - a fleshy body, a smiling face, a shaven head with a snail-shell (kapardin) ushnisha, and a thin transparent robe.

• Statement 3 - WRONG. Amaravati (Andhra Pradesh) is known for narrative relief panels with dynamic movement and slender, elegant figures, especially on the stupa railings, carved in white or greenish limestone under Satavahana and Ikshvaku patronage. Related sites are Nagarjunakonda, Goli and Jaggayyapeta.

TOPIC REVISION - THREE SCHOOLS COMPARED

• Patronage: Gandhara and Mathura both flourished under the Kushanas (Kanishka); Amaravati under the Satavahanas.

• Religion: Gandhara is mainly Buddhist; Mathura covers all three faiths; Amaravati is mainly Buddhist.

• Origin of the Buddha image: Gandhara and Mathura are both credited with the early anthropomorphic Buddha. Scholars debate which came first, so treat 'Gandhara was first' as an interpretation, not a settled fact.

• Earlier aniconic phase: at Sanchi, Bharhut and early Amaravati the Buddha is shown through symbols - the bodhi tree, an empty throne, footprints, a wheel or a stupa.

• Later developments: the Gupta 'Sarnath school' (cream Chunar sandstone, transparent drapery, serene expression).

Gandhara vs Mathura vs Amaravati

Feature	Gandhara	Mathura	Amaravati
Region	North-west	Braj (UP)	Krishna valley (Andhra)
Medium	Grey schist, stucco	Spotted red sandstone	White limestone
Patron	Kushanas	Kushanas	Satavahanas, Ikshvakus
Influence	Hellenistic	Indigenous	Indigenous; narrative reliefs

Match medium to school: grey schist = Gandhara; spotted red sandstone = Mathura; white limestone/marble = Amaravati. Kushana patronage covers Gandhara and Mathura, but not Amaravati.

A year is too long to wait for feedback.

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31 **On 17 October 2026, the Archaeological Survey of India began conservation work on the upper rampart of the Brihadisvara temple at Thanjavur. With reference to this temple, consider the following statements:**

1. Its vimana over the sanctum rises higher than the gopurams of the temple complex.
2. It is part of the UNESCO World Heritage property 'Great Living Chola Temples', along with temples at Gangaikondacholapuram and Darasuram.
3. It was built by Rajendra I to commemorate his northern expedition to the Ganga.
4. It was built largely of sandstone brought from the Deccan plateau.

How many of the statements given above are correct?

(a) Only one

(b) Only two ✓

(c) Only three

(d) All four

Explanation

The correct answer is (b) Only two. Statements 1 and 2 are correct. The temple was built by Rajaraja I (completed c. 1010 CE), not Rajendra I, and it is built of granite, not sandstone.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. The pyramidal vimana (about 66 m high) dominates the complex; the two gateways (Keralantakan and Rajarajan gopurams) are lower. This is a hallmark of early Chola temples. In later Pandya, Vijayanagara and Nayaka temples the relationship reversed, and towering gopurams overshadowed the vimana (e.g. Madurai Meenakshi, Srirangam).

• Statement 2 - CORRECT. The Brihadisvara (Rajarajeshwaram) at Thanjavur was inscribed by UNESCO in 1987. In 2004 the property was extended as the 'Great Living Chola Temples' to include the Brihadisvara at Gangaikondacholapuram (Rajendra I) and the Airavatesvara at Darasuram (Rajaraja II). 'Living' means worship continues in them.

• Statement 3 - WRONG. Rajaraja I (985-1014 CE) built the Thanjavur temple. It was his son Rajendra I who, after his expedition to the Ganga, founded the new capital Gangaikondacholapuram and its temple.

• Statement 4 - WRONG. The temple is built almost entirely of granite, a remarkable achievement given that no granite source lies close to Thanjavur.

TOPIC REVISION - CHOLA TEMPLE ARCHITECTURE (DRAVIDA STYLE)

• Elements: garbhagriha (sanctum) → antarala → mandapas; pyramidal multi-storeyed vimana topped by a shikhara (in Dravida terminology the dome-shaped crowning member, not the whole tower); prakara (enclosure walls); gopurams; temple tank.

• Thanjavur features: a massive monolithic Nandi; a two-storeyed ambulatory around the sanctum with Chola-period frescoes (partly overpainted in the Nayaka period); sculptures of karanas (the dance poses described in the Natyashastra); extensive inscriptions recording grants and temple staff.

• Chola bronzes: the lost-wax (cire perdue) technique; the Nataraja (Shiva as cosmic dancer within a ring of fire) is the iconic form.

• Temple as institution: land-owning, an employer of dancers, musicians and priests, a bank and a centre of learning.

DYNASTIC SEQUENCE OF DRAVIDA ARCHITECTURE

Pallava (Mamallapuram rathas, Shore Temple, Kailasanatha at Kanchi) → Chola (Thanjavur, Gangaikondacholapuram, Darasuram) → Pandya (gopurams grow) → Vijayanagara (raya gopurams, kalyana mandapas) → Nayaka (pillared corridors, Madurai).

The Great Living Chola Temples

Temple	Place	Builder
Brihadisvara (Rajarajeshwaram)	Thanjavur	Rajaraja I (c. 1010 CE)
Brihadisvara	Gangaikondacholapuram	Rajendra I
Airavatesvara	Darasuram	Rajaraja II

Rajaraja I = Thanjavur; Rajendra I = Gangaikondacholapuram; Rajaraja II = Darasuram. In Chola temples the vimana dominates; tall gopurams are a later development.

A wrong answer you understand is worth more than a right one you guessed.

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32 **In August 2026, the ASI declared the Kakatiya-era Gollala Gudi temple at Palampet (Telangana), close to the Ramappa temple, a monument of national importance. With reference to Kakatiya architecture, consider the following statements:**

1. The Ramappa (Rudreshwara) temple is named after its chief sculptor rather than its presiding deity.
2. The Ramappa temple's foundation used a 'sandbox' technique, and its superstructure used lightweight porous bricks.
3. The Kakatiya Kala Thoranam of Warangal features in the official emblem of the State of Telangana.

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3 ✓

Explanation

The correct answer is (d) 1, 2 and 3. All three statements are correct. The Ramappa temple (1213 CE), inscribed by UNESCO in 2021, is unusual for being known by its sculptor's name, and for its sandbox foundation and 'floating' bricks.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. The temple was built in 1213 CE during the reign of Ganapati Deva by his general Recharla Rudra. Its deity is Ramalingeswara (Rudreshwara), but it is popularly called after the sculptor Ramappa - a rare case in Indian temple history.

• Statement 2 - CORRECT. The foundation pit was filled with sand (a 'sandbox') before the plinth was laid, which helps absorb seismic shocks. The vimana (tower) used porous, lightweight bricks - often called 'floating bricks' - to reduce load.

• Statement 3 - CORRECT. The ornate stone gateways (Kala Thoranam) of the Warangal fort are a Kakatiya signature, and the Kala Thoranam appears in the Telangana state emblem.

TOPIC REVISION - KAKATIYA DYNASTY AND ART (c. 12th-14th century)

• Capital: Orugallu (Warangal); important rulers Rudradeva (Prataparudra I), Ganapati Deva, Rudramadevi (one of the few women rulers, praised in Marco Polo's account of his visit to Motupalli), Prataparudra II (defeated by the Delhi Sultanate, early 14th century).

• Temple features: star-shaped (stellate) or cruciform plans on a high plinth; black basalt (dolerite) brackets carved as madanikas (celestial dancers) and mythical beasts; polished pillars; the 'trikutalaya' plan (three shrines around a common hall) - seen in the Thousand Pillar Temple at Hanamkonda (Shiva, Vishnu, Surya) and in the newly protected Gollala Gudi.

• Dance link: the Nritta Ratnavali, a treatise on dance by Jayapa Senani (Ganapati Deva's commander), and Ramappa's sculptures were used to revive the Perini Shivatandavam warrior dance.

• Water management: Kakatiya tanks (e.g. Ramappa lake, Pakhal lake) - the inspiration for Telangana's 'Mission Kakatiya' tank-restoration programme.

CURRENT-AFFAIRS LINK

• Gollala Gudi lies near Ramappa at Palampet, Mulugu district. It is a trikutalaya with three sanctums, hamsa friezes, jali work, and niches holding Vishnu, Lakshmi, Ganesha and Mahishasuramardini.

> 'Floating bricks' were used in the superstructure, not the foundation; the foundation used the sandbox method. And the temple's popular name honours the sculptor, not the deity.

The same mistake, made twice, is a habit. This is where you catch it the first time.

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33 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): The Tolkappiyam is a treatise on Tamil grammar and poetics.

Reason (R): According to Tamil tradition, the Tolkappiyam is the only surviving work of the third (last) Sangam.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false ✓

(d) A is false but R is true

Explanation

The correct answer is (C): A is true but R is false. By tradition, the Tolkappiyam is the only surviving work of the SECOND Sangam. The anthologies of the third Sangam - the Ettuthogai and the Pattuppattu - survive.

ASSERTION - TRUE

• The Tolkappiyam, attributed to Tolkappiyar, is the oldest extant Tamil grammar. It has three books: Ezhuttatikaram (orthography and phonology), Sollatikaram (words and syntax) and Porulatikaram (subject matter, poetics, prosody).
• The Porulatikaram sets out the akam (inner: love) and puram (outer: war, ethics, kingship) themes and the 'tinai' landscape scheme - kurinji (hills), mullai (forest), marutam (farmland), neytal (coast) and palai (arid land).
• Dating is debated: estimates range from the last centuries BCE to the first centuries CE, and parts may have been added later.

REASON - FALSE

• Tradition, recorded in Iraiyanar Akapporul's commentary, speaks of three Sangams (assemblies of poets) at Madurai under Pandya patronage. Nothing survives from the first; the Tolkappiyam alone survives from the second; the anthologies survive from the third.
• Historians treat the 'three Sangams' story as tradition rather than verified history.

TOPIC REVISION - SANGAM LITERATURE

• Ettuthogai (Eight Anthologies) - e.g. Purananuru, Akananuru, Kuruntokai, Natrinai.
• Pattuppattu (Ten Idylls) - e.g. Maduraikkanchi, Pattinappalai (describing the port of Puhar).
• Post-Sangam 'Eighteen Minor Works' - including the Tirukkural (Thiruvalluvar) on virtue, wealth and love.
• Twin epics: Silappadikaram (Ilango Adigal) and Manimekalai (Sittalai Sattanar, Buddhist).
• Tamil was the first language to be declared a 'Classical Language' (2004). Marathi, Pali, Prakrit, Assamese and Bengali were added in 2024, taking the total to 11.

> Tolkappiyam = 2nd Sangam (the only survivor); the anthologies = 3rd Sangam; the Tirukkural is post-Sangam. The 'three Sangams' are a tradition, not established history.

34 **Which one of the following pairs of a school of Indian philosophy (darshana), its traditional founder and its core idea is correctly matched?**

(a) Nyaya - Kapila - dualism of purusha (consciousness) and prakriti (matter)

(b) Purva Mimamsa - Gautama - logic and the valid means of knowledge (pramana)

(c) Samkhya - Jaimini - authority of the Vedas and correct ritual (karma-kanda)

(d) Vaisheshika - Kanada - atoms (paramanu) as the basic constituents of matter ✓

Explanation

The correct answer is (d). The Vaisheshika school, attributed to Kanada (Vaisheshika Sutras), held that the physical world is made of eternal, indivisible atoms (paramanu) and classified reality into categories (padarthas) such as substance, quality and action.

OPTION-WISE ANALYSIS

• Option (a) - WRONG. The purusha-prakriti dualism belongs to Samkhya, attributed to Kapila. Nyaya is attributed to Gautama (Akshapada).

• Option (b) - WRONG. Logic and the pramanas (perception, inference, comparison, testimony) are the core of Nyaya (Gautama). Purva Mimamsa is attributed to Jaimini.

• Option (c) - WRONG. Vedic authority and correct ritual are the concern of Purva Mimamsa (Jaimini); Samkhya is Kapila's.

• Option (d) - CORRECT, for the reason in the verdict. Vaisheshika lists six categories (padarthas) of reality - dravya (substance), guna (quality), karma (action), samanya (generality), vishesha (particularity) and samavaya (inherence); later writers added a seventh, abhava (non-existence). It later merged with Nyaya into a single Nyaya-Vaisheshika tradition.

TOPIC REVISION - THE SIX ASTIKA DARSHANAS (accept Vedic authority)

• Samkhya - Kapila - dualism; prakriti made of three gunas (sattva, rajas, tamas); originally non-theistic.

• Yoga - Patanjali (Yoga Sutras) - ashtanga (eight-limbed) path; accepts Ishvara.

• Nyaya - Gautama - logic and epistemology.

• Vaisheshika - Kanada - atomism and categories.

• Purva Mimamsa - Jaimini - Vedic ritual and dharma; Kumarila Bhatta and Prabhakara were later exponents.

• Uttara Mimamsa (Vedanta) - Badarayana (Brahma Sutras); later schools - Advaita (Shankara), Vishishtadvaita (Ramanuja), Dvaita (Madhva).

• Paired schools: Samkhya-Yoga, Nyaya-Vaisheshika, Mimamsa-Vedanta.

NASTIKA (HETERODOX) SCHOOLS - reject Vedic authority

• Charvaka/Lokayata (materialism), Buddhism, Jainism, Ajivika (Makkhali Gosala - determinism, niyati).

The six astika darshanas

School	Founder	Key idea
Samkhya	Kapila	Purusha-prakriti dualism
Yoga	Patanjali	Eight-limbed path
Nyaya	Gautama	Logic, pramanas
Vaisheshika	Kanada	Atomism
Purva Mimamsa	Jaimini	Vedic ritual, dharma
Vedanta	Badarayana	Brahman, Upanishadic thought

Remember pairs: Kapila-Samkhya, Patanjali-Yoga, Gautama-Nyaya, Kanada-Vaisheshika, Jaimini-Mimamsa, Badarayana-Vedanta. 'Astika' means accepting the Vedas, not belief in God - Samkhya and Mimamsa can be non-theistic yet astika.

35 Among the recipients of the Sangeet Natak Akademi Awards conferred on 13 August 2026 were exponents of Dhrupad. Which one of the following statements correctly describes Dhrupad?

(a) It begins with an elaborate unmetred alap and is usually accompanied by the pakhawaj. ✓

(b) It is a light, romantic genre associated with Lucknow and the court of Wajid Ali Shah.

(c) It grew from the songs of camel drivers of Punjab, and was refined by Shori Miyan.

(d) It is a Carnatic devotional composition (kriti) form perfected by the Trinity of Thanjavur.

Reading a solution shows you the answer. Sitting the test shows you yourself.

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Explanation

The correct answer is (a). Dhrupad, the oldest surviving genre of Hindustani classical vocal music, opens with a long, unmetred alap (sung on syllables such as 'nom-tom') followed by a composition set to a tala, and is traditionally accompanied by the pakhawaj (a barrel drum).

OPTION-WISE ANALYSIS

• Option (a) - CORRECT, for the reason in the verdict.

• Option (b) - WRONG. This describes Thumri - a light classical, romantic and devotional genre (often on the Radha-Krishna theme) associated with Lucknow (Wajid Ali Shah) and Benaras. Exponents include Girija Devi and Siddheshwari Devi.

• Option (c) - WRONG. This describes Tappa, which grew out of the songs of Punjab's camel drivers and was refined by Shori Miyan; it is known for quick, knotty phrasing.

• Option (d) - WRONG. The kriti is a Carnatic form perfected by the Trinity - Tyagaraja, Muthuswami Dikshitar and Syama Sastri (18th-19th century, Thanjavur region).

TOPIC REVISION - DHRUPAD

• Name: from 'dhruva' (fixed) and 'pada' (verse).

• Patronage: it flourished under Raja Man Singh Tomar of Gwalior (15th-16th century). Tansen (Akbar's court) and his teacher Swami Haridas are its legendary figures.

• Structure: alap (slow, unmetred), then jor and jhala, then the composition in four parts - sthayi, antara, sanchari, abhog.

• Banis (styles): Gauhar, Dagar, Khandar, Nauhar.

• Exponents: the Dagar family (the Dagar brothers), the Gundecha brothers, the Mallik family of Darbhanga.

HINDUSTANI VOCAL GENRES COMPARED

• Dhrupad - austere, spiritual, pakhawaj.

• Khayal - 'imagination'; more ornamentation and improvisation, tabla; became dominant from the 18th century (Sadarang and Adarang at Muhammad Shah's court); gharanas such as Gwalior, Agra, Kirana and Jaipur.

• Thumri and Dadra - light classical, emotional.

• Tappa - fast, intricate phrasing.

Hindustani vocal genres

Genre	Accompaniment	Note
Dhrupad	Pakhawaj	Oldest; Gwalior; Dagar family
Khayal	Tabla	Improvisation; gharanas
Thumri	Tabla	Light classical; Lucknow, Benaras
Tappa	Tabla	Punjab origin; Shori Miyan

> Dhrupad = pakhawaj and long alap; Khayal = tabla and improvisation; Thumri = Lucknow, romantic; Tappa = Punjab, Shori Miyan. Kriti is Carnatic, not Hindustani.

36 **On 13 August 2026, the President conferred the Sangeet Natak Akademi Fellowships and Awards for 2024 and 2025; among the awardees was an Odissi exponent, Shubhada Varadkar. With reference to Odissi, consider the following statements:**

1. Chauka and tribhanga are its two fundamental body positions.
2. The Mahari (temple dancer) and Gotipua (boy dancer) traditions contributed to its evolution.
3. It is accompanied by Carnatic music, with the mridangam as its principal percussion instrument.
4. It was the latest dance form to be recognised as classical by the Sangeet Natak Akademi, in 2000.

How many of the statements given above are correct?

(a) Only one	**(b) Only two ✓**
(c) Only three	(d) All four

Whoever sent you this knows their strengths, understands their gaps, and knows where they're headed. They're preparing with clarity and confidence—not fear. They know their edge. You can too.

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Explanation

The correct answer is (b) Only two. Statements 1 and 2 are correct. Odissi uses Odissi music (with ragas and talas of its own tradition) and the mardala as its main percussion; and the most recent addition to the classical list is Sattriya of Assam (2000), not Odissi.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. Chauka is a square, masculine stance with bent knees (associated with Jagannath). Tribhanga is the 'three-bend' posture - head, torso and hips deflected - giving Odissi its sculptural, feminine grace.

• Statement 2 - CORRECT. Maharis were women dedicated to the Jagannath temple at Puri. Gotipuas were boys dressed as girls who performed outside temples (a tradition said to have grown from the 16th century). Both fed into the modern form.

• Statement 3 - WRONG. Odissi is set to Odissi music, which has its own raga-tala system. The main percussion is the mardala (a barrel drum), with flute, sitar/violin and manjira (cymbals). Lyrics often come from Jayadeva's Gita Govinda.

• Statement 4 - WRONG. The Sangeet Natak Akademi recognises eight classical forms; the latest is Sattriya (Assam), recognised in 2000. Odissi gained classical recognition after its revival in the 1950s.

TOPIC REVISION - ODISSI

• Antiquity: dance scenes in the Udayagiri-Khandagiri caves (Kharavela's period, 1st century BCE) and in the temple sculpture of Konark and Bhubaneswar. The Natyashastra mentions the 'Odra-Magadhi' style.

• Repertoire: Mangalacharan → Batu (Sthayi) → Pallavi (pure dance) → Abhinaya (expressive) → Moksha (finale).

• Revival (1950s): the Jayantika association; gurus Kelucharan Mohapatra, Pankaj Charan Das, Deba Prasad Das; dancers Sanjukta Panigrahi, Sonal Mansingh.

THE EIGHT CLASSICAL DANCES (SNA)

Bharatanatyam (Tamil Nadu), Kathak (north India), Kathakali (Kerala), Mohiniyattam (Kerala), Kuchipudi (Andhra Pradesh), Odissi (Odisha), Manipuri (Manipur), Sattriya (Assam). The Ministry of Culture also lists Chhau as a classical form, so counts of 8 or 9 appear in different sources.

Classical dances - key identifiers

Dance	State	Identifier
Odissi	Odisha	Tribhanga, chauka, mardala
Bharatanatyam	Tamil Nadu	Araimandi, Carnatic music
Kuchipudi	Andhra Pradesh	Tarangam on brass plate
Sattriya	Assam	Sankardeva's sattras; recognised 2000

> Odissi = tribhanga, chauka, mardala, Gita Govinda. Bharatanatyam = mridangam and Carnatic music. Sattriya (Assam) is the last addition (2000).

The exam will ask what you avoided. Find out what that is while it still costs nothing.

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37 **Under the Gyan Bharatam Mission (the restructured National Mission for Manuscripts), the National Manuscript Survey has documented over 1.19 crore manuscripts. With reference to India's manuscript and epigraphic heritage, consider the following statements:**

1. The Bakhshali manuscript, written on birch bark, uses a dot as a placeholder for zero.
2. The Gilgit manuscripts, discovered in 1931, are among the oldest surviving manuscripts in India and consist largely of Buddhist texts.
3. The Brahmi script was deciphered by James Prinsep in the 1830s.
4. The Kharosthi script, used in the north-west, was written from left to right like Brahmi.

How many of the statements given above are correct?

(a) Only one

(b) Only two

(c) Only three ✓

(d) All four

Explanation

The correct answer is (c) Only three. Statements 1, 2 and 3 are correct. Kharosthi was written from right to left, unlike Brahmi, which runs left to right.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. Found near Peshawar in 1881 and kept at Oxford's Bodleian Library, the Bakhshali manuscript is a mathematical text on birch bark using a dot as the placeholder for zero. Radiocarbon tests (2017) gave different folios widely different dates (3rd-4th to 9th-10th century CE), so its exact age is still debated.

• Statement 2 - CORRECT. Found at Gilgit in 1931, these birch-bark manuscripts (c. 5th-6th century CE) contain mainly Buddhist canonical works. They are written in the Gupta-period Brahmi and the related 'Proto-Sharada' script. Much of the collection is kept in the National Archives of India.

• Statement 3 - CORRECT. James Prinsep, Secretary of the Asiatic Society of Bengal, deciphered Brahmi in 1837-38, which made the Ashokan edicts readable; he identified 'Devanampiya Piyadasi' with Ashoka (confirmed later by the Maski edict, 1915).

• Statement 4 - WRONG. Kharosthi, derived from Aramaic, was written right to left and was used in Gandhara (e.g. the Ashokan edicts at Shahbazgarhi and Mansehra). Brahmi, the ancestor of most South and South-East Asian scripts, runs left to right.

TOPIC REVISION - THE MANUSCRIPT TRADITION

• Materials: birch bark (bhurjapatra, the north-west and Kashmir), palm leaf (tadapatra, south and east India), paper (after about the 13th century), cloth, and copper plates for grants.

• Institutions: the National Mission for Manuscripts (2003, nodal agency IGNCA) - now the Gyan Bharatam Mission (announced in the Union Budget 2025-26) - for survey, cataloguing, conservation, digitisation and a public portal. Most manuscripts are held privately, which makes access and conservation difficult.

SCRIPT EVOLUTION

Brahmi → Gupta Brahmi → Siddhamatrika and Sharada → Nagari/Devanagari (north); Brahmi → Grantha, Tamil-Brahmi → Tamil, Kannada-Telugu (south). Kharosthi died out by about the 4th-5th century CE.

> Kharosthi = right to left (Aramaic origin), north-west; Brahmi = left to right, all-India. The Bakhshali manuscript's dating is still debated - do not quote a single date as settled.

38 **Pandavani exponent Teejan Bai, who had received all three Padma awards, died in July 2026. With reference to India's traditional theatre and narrative forms, consider the following statements:**

1. Pandavani narrates episodes of the Mahabharata, in the Vedamati (seated) and Kapalika (standing, more dramatic) styles.
2. Bhavai is a traditional theatre form of Kerala based mainly on episodes from the Ramayana.
3. Yakshagana of coastal Karnataka combines dance, music and dialogue, with an elaborate costume and headgear.

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only ✓

(d) 1, 2 and 3

Explanation

The correct answer is (c) 1 and 3 only. Statement 2 is wrong: Bhavai is a folk theatre of Gujarat (and parts of Rajasthan), known for its satirical, socially themed 'vesh' (playlets), not a Kerala form.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. Pandavani, from Chhattisgarh, is a ballad-style narration of the Pandavas' story. In the Vedamati style the narrator sits and sings in a more textual way; in the Kapalika style the narrator stands and acts out scenes, improvising freely. The performer uses the tambura (tanpura) both to play and as a prop (a mace, a chariot, a bow).

• Statement 2 - WRONG. Bhavai (Gujarat/Rajasthan) is attributed by tradition to Asait Thakar (14th century). It consists of short playlets ('vesh') with social satire, accompanied by the bhungal (a long brass trumpet). Kerala's forms include Kutiyattam (Sanskrit theatre, UNESCO 2008), Kathakali, Theyyam and Krishnattam.

• Statement 3 - CORRECT. Yakshagana (Karnataka) draws on the Ramayana, the Mahabharata and the Bhagavata, with a narrator-singer (bhagavata), chande and maddale drums, and dramatic make-up. Its regional styles are Tenkuthittu (southern) and Badagathittu (northern).

TOPIC REVISION - TEEJAN BAI AND PANDAVANI

• From Durg (Chhattisgarh), she learned from her grandfather and was among the first women to perform in the Kapalika style, which had been male-dominated. She received the Padma Shri, Padma Bhushan and Padma Vibhushan.

• Other Pandavani artists: Jhaduram Devangan, Ritu Verma.

REGIONAL THEATRE FORMS FOR REVISION

• Nautanki - UP; Swang - Haryana/Punjab; Tamasha - Maharashtra (Lavani dance); Jatra - Bengal/Odisha; Ankia Naat - Assam (Sankardeva); Therukoothu - Tamil Nadu; Bhand Pather - Kashmir; Maach - Madhya Pradesh; Ramlila - north India (UNESCO 2008).

Traditional theatre forms by region

Form	Region	Feature
Pandavani	Chhattisgarh	Mahabharata narration; tambura as prop
Bhavai	Gujarat	Satirical vesh; bhungal
Yakshagana	Karnataka	Bhagavata narrator; chande
Kutiyattam	Kerala	Sanskrit theatre; UNESCO 2008

> Do not mix up regions: Bhavai = Gujarat; Yakshagana = Karnataka; Kutiyattam = Kerala. Pandavani's two styles: Vedamati (seated) and Kapalika (standing).

Every explanation here was written to teach, not to justify an answer key.

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39 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): Many Hoysala temples, such as those at Halebidu and Somanathapura, stand on a raised platform (jagati) that follows a star-shaped (stellate) plan.

Reason (R): Hoysala sculptors favoured chloritic schist (soapstone), which is relatively soft when quarried and allows very intricate carving.

(a) Both A and R are true and R is the correct explanation of A	**(b) Both A and R are true but R is NOT the correct explanation of A ✓**
(c) A is true but R is false	(d) A is false but R is true

Explanation

The correct answer is (B): both A and R are true, but R is not the correct explanation of A. The stellate plan is a choice of ground plan and design; the soft soapstone explains the fineness of the carving, not the star-shaped layout.

ASSERTION - TRUE

• Hoysala temples (Karnataka, 12th-13th century) typically stand on a high jagati that serves as a circumambulatory path. Their walls and platforms follow a stellate (star-shaped) plan with many projecting angles, creating a play of light and shade.

• Examples: Hoysaleswara (Halebidu), Keshava (Somanathapura, 1268 CE) and Chennakeshava (Belur, 1117 CE, Vishnuvardhana).

REASON - TRUE

• Chloritic schist is soft when freshly quarried and hardens on exposure. This allowed lathe-turned pillars, filigree-like jewellery on the madanikas (bracket figures) and dense horizontal friezes (elephants, horsemen, scrolls, epic scenes).

WHY R DOES NOT EXPLAIN A

• A is about the plan and form of the building (an architectural design choice); R is about the material and the quality of carving. Stellate plans are also seen in Kakatiya temples built of other stone, so the material does not cause the plan.

TOPIC REVISION - HOYSALA ART

• Style: often classed as Vesara (a blend of Nagara and Dravida features).

• Sculptors signed their work (e.g. Mallitamma, Dasoja), which is unusual in Indian temple art.

• Multi-shrine temples: dvikuta (two shrines), trikuta (three) - e.g. Somanathapura is a trikuta.

• UNESCO: 'Sacred Ensembles of the Hoysalas' (Belur, Halebidu, Somanathapura) was inscribed in 2023.

• Patrons: Vishnuvardhana (who, by tradition, converted from Jainism to Vaishnavism under Ramanujacharya), Veera Ballala II, Narasimha III. Capitals: Belur, then Dwarasamudra (Halebidu).

Hoysala signature features

Feature	Description
Plan	Stellate (star-shaped) on a high jagati
Material	Chloritic schist (soapstone)
Pillars	Lathe-turned, highly polished
Sculpture	Madanikas; friezes; signed by artists

> Hoysala = stellate plan, soapstone, high jagati, signed sculptures. Check whether R explains the specific claim in A - here plan vs material.

40 With reference to the Kailasa temple (Cave 16) at Ellora, which one of the following statements is correct?

(a) It was excavated during the Gupta period and is chiefly known for its Buddhist mural paintings.

(b) It was cut from the top downward out of a single rock under the Rashtrakuta king Krishna I. ✓

(c) It is a structural temple built of dressed granite blocks by the Pallava ruler Narasimhavarman II.

(d) It is a Jain rock-cut shrine excavated under the patronage of the Chalukyas of Badami.

Well prepared is not the same as competitive. Know which one you are.

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Explanation

The correct answer is (b). The Kailasa (Kailasanatha) temple, dedicated to Shiva, was excavated in the 8th century under the Rashtrakuta king Krishna I. It was carved downward from the top of a basalt hillside - the largest monolithic rock-cut structure in the world, shaped like Mount Kailasa.

OPTION-WISE ANALYSIS

• Option (a) - WRONG. Ellora's caves date from about the 6th to the 10th century CE, after the Gupta period. Painted Buddhist murals are the glory of Ajanta (2nd century BCE - c. 5th century CE), not of the Kailasa temple, although traces of paint survive at Kailasa.

• Option (b) - CORRECT, for the reasons in the verdict.

• Option (c) - WRONG. That is the Kailasanatha temple at Kanchipuram, a structural (built) temple of the Pallava ruler Narasimhavarman II (Rajasimha), early 8th century. The shared name causes confusion.

• Option (d) - WRONG. The Jain caves at Ellora are Caves 30-34 (e.g. Indra Sabha, Jagannath Sabha), mostly of the 9th-10th century under the Rashtrakutas. The Badami Chalukyas' rock-cut caves are at Badami itself.

TOPIC REVISION - ELLORA (UNESCO, 1983)

• 34 caves in the Charanandri hills near Aurangabad (Chhatrapati Sambhajinagar): Buddhist (1-12), Brahmanical (13-29) and Jain (30-34) - a symbol of religious co-existence.

• Buddhist highlights: Cave 10 'Vishwakarma' (chaitya with a seated Buddha) and multi-storeyed viharas (Caves 11 and 12, 'Do Thal' and 'Tin Thal').

• Kailasa features: a Dravida-style vimana, a Nandi mandapa, free-standing pillars (dhvajastambhas), life-size elephants, and the relief of Ravana shaking Mount Kailasa.

• Technique: excavating vertically from the top removed an estimated 200,000 tonnes of rock - subtractive architecture (nothing is added).

ROCK-CUT ARCHITECTURE TIMELINE

Barabar caves (Maurya, Ajivikas) → Karle, Bhaja, Ajanta chaityas and viharas (Satavahana period) → Udayagiri, MP (Gupta) → Badami and Elephanta (6th century) → Mamallapuram rathas (Pallava, 7th century) → Ellora Kailasa (Rashtrakuta, 8th century).

Ajanta vs Ellora

Feature	Ajanta	Ellora
Religion	Buddhist only	Buddhist, Brahmanical, Jain
Famous for	Murals (Jataka themes)	Kailasa monolith, sculpture
Patrons	Satavahanas, Vakatakas	Kalachuris, Chalukyas, Rashtrakutas

Kailasa at Ellora (rock-cut, Rashtrakuta) is not the Kailasanatha at Kanchi (structural, Pallava). Ajanta = paintings, Ellora = sculpture and monolithic architecture.

41 **Which one of the following Mughal-era tombs is regarded as the earliest major Mughal monument faced almost entirely in white marble, with extensive pietra dura (stone inlay) ornamentation?**

(a) Humayun's tomb at Delhi

(b) Akbar's tomb at Sikandra near Agra

(c) Itimad-ud-Daulah's tomb at Agra ✓

(d) Bibi ka Maqbara at Aurangabad

The exam doesn't ask how much you studied. It asks where you stand among everyone who studied too.

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Explanation

The correct answer is (c). The tomb of Mirza Ghiyas Beg (Itimad-ud-Daulah), built by his daughter Nur Jahan between about 1622 and 1628, marks the shift from red sandstone to white marble. Its inlaid semi-precious stone work anticipates the Taj Mahal - hence the nickname 'Baby Taj'.

OPTION-WISE ANALYSIS

• Option (a) - WRONG. Humayun's tomb (completed c. 1570; commissioned by his widow Bega Begum, architect Mirak Mirza Ghiyas) is built mainly of red sandstone with white marble trim. It is the first garden tomb in the subcontinent on the charbagh plan and introduced the Persian double dome on a grand scale. UNESCO 1993.

• Option (b) - WRONG. Akbar's tomb at Sikandra (completed under Jahangir, c. 1613) is mainly red sandstone with marble inlay, has no dome over the main structure, and has a marble top storey. It shows Indian, Persian and Buddhist-vihara influences.

• Option (c) - CORRECT, for the reason in the verdict.

• Option (d) - WRONG. Bibi ka Maqbara (c. 1660, Aurangabad) was built by Azam Shah, son of Aurangzeb, for his mother Dilras Banu Begum. It is a later, smaller imitation of the Taj (the 'Taj of the Deccan'), with marble used only partly and stucco elsewhere.

TOPIC REVISION - EVOLUTION OF MUGHAL ARCHITECTURE

• Babur: gardens (Ram Bagh, Agra).

• Akbar: red sandstone, trabeate-arcuate blend, Hindu and Persian motifs - Agra Fort, Fatehpur Sikri (Buland Darwaza, Panch Mahal, Jodha Bai's palace).

• Jahangir: more painting than building; the transition to marble (Itimad-ud-Daulah).

• Shah Jahan: the zenith in white marble and pietra dura - Taj Mahal (architect traditionally named as Ustad Ahmad Lahori), Moti Masjid (Agra), Red Fort and Jama Masjid (Delhi).

• Aurangzeb: decline in patronage - Badshahi Mosque (Lahore), Moti Masjid (Delhi Red Fort).

KEY TERMS

• Pietra dura (parchinkari): inlay of cut and fitted coloured stones in marble to form images.

• Charbagh: a four-part garden divided by water channels, symbolising paradise.

• Double dome: an inner dome for the interior proportions and an outer dome for external height.

> Humayun's tomb = first charbagh garden tomb (red sandstone); Itimad-ud-Daulah = first all-marble facing with pietra dura; Taj = the culmination. Bibi ka Maqbara is a later imitation, not a forerunner.

42 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): Many of the world's large hot deserts, such as the Sahara, Kalahari and Atacama, lie roughly between 15° and 30° latitude, often towards the western margins of continents.

Reason (R): These latitudes lie in the zone of rising air associated with the Inter-Tropical Convergence Zone (ITCZ).

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false ✓

(d) A is false but R is true

Explanation

The correct answer is (C): A is true but R is false. These latitudes lie under the subtropical high-pressure belt, where air from the Hadley cell DESCENDS, warming and drying - not the rising air of the ITCZ.

ASSERTION - TRUE

• Trade-wind or subtropical hot deserts: Sahara and Arabian; Kalahari and Namib; the Great Australian (Victoria, Great Sandy); Atacama; Sonoran. Many occupy the western sides of continents.

REASON - FALSE

• The ITCZ (equatorial low) is where trade winds converge and air RISES, giving heavy convective rain - the equatorial rainforests (Amazon, Congo).

• Hadley cell: the air that rises at the ITCZ flows poleward aloft and sinks at about 25-35° latitude, forming the subtropical highs (horse latitudes). Sinking air warms adiabatically and its relative humidity falls → clear skies and aridity.

WHY WEST COASTS ARE DRIER

• Cold ocean currents (Humboldt → Atacama; Benguela → Namib; Canary → western Sahara; California → Sonoran; West Australian) cool the lower air, creating a temperature inversion that blocks convection. This produces fog but little rain.

• The trade winds blow offshore on west coasts, after crossing the continent and losing moisture.

• Rain-shadow effects add to this (e.g. the Andes for the Patagonian desert - a mid-latitude desert).

TOPIC REVISION - TYPES OF DESERTS

• Subtropical (trade-wind) - Sahara; cold-current coastal - Atacama (one of the driest places on Earth); rain-shadow - Patagonia; continental interior / mid-latitude - Gobi, Taklamakan; polar - Antarctica (the largest desert by area).

• India: the Thar lies in the subtropical belt and also suffers from the Aravallis running parallel to the south-west monsoon winds, so they offer no barrier to cause rain.

Global pressure belts and climate

Belt	Latitude	Air motion	Typical climate
Equatorial low (ITCZ)	0-10°	Rising	Rainforest
Subtropical high	25-35°	Sinking	Hot desert
Subpolar low	60-65°	Rising	Cyclonic, wet
Polar high	90°	Sinking	Cold desert

ITCZ = rising air = rain. Subtropical high = sinking air = desert. Do not confuse the equatorial low with the horse latitudes.

43 Some of the world's richest fishing grounds lie where warm and cold ocean currents meet. Which one of the following correctly pairs a fishing region with the currents that meet near it?

(a) Grand Banks off Newfoundland: the Gulf Stream and the Labrador Current ✓

(b) Waters off north-east Japan: the Gulf Stream and the Oyashio Current

(c) Waters off the coast of Peru: the Agulhas and the Humboldt Currents

(d) Dogger Bank in the North Sea: the warm Kuroshio and the cold Canary Currents

A limited number of places. One honest question: are you holding yours?

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Explanation

The correct answer is (a). Off Newfoundland, the warm Gulf Stream meets the cold Labrador Current over a shallow continental shelf. The mixing brings up nutrients and favours plankton growth, making the Grand Banks one of the world's great cod fisheries (overfished and closed in 1992).

OPTION-WISE ANALYSIS

• Option (a) - CORRECT, for the reason in the verdict. The same meeting of warm and cold water causes the famous fogs of Newfoundland.

• Option (b) - WRONG. Off Japan, the warm Kuroshio (the Pacific counterpart of the Gulf Stream) meets the cold Oyashio, creating the rich north-west Pacific fishery. The Gulf Stream is an Atlantic current.

• Option (c) - WRONG. Peru's fishery (anchoveta) depends on UPWELLING of cold, nutrient-rich water along the cold Humboldt (Peru) Current - not a meeting of warm and cold currents. The warm Agulhas Current flows off south-east Africa in the Indian Ocean.

• Option (d) - WRONG. The North Sea fishery (Dogger Bank) is a shallow-shelf ground warmed by the North Atlantic Drift. The Kuroshio is in the Pacific, and the cold Canary Current flows off north-west Africa.

TOPIC REVISION - WHY FISH CONCENTRATE

• Shallow continental shelves (sunlight reaches the bottom), banks, mixing of warm and cold water, upwelling zones on the WEST coasts of continents (Peru, California, Canary, Benguela), and nutrient inflow from rivers.

• El Niño weakens upwelling off Peru, so the anchovy catch collapses - a link between ENSO and economic geography.

OCEAN CURRENT PATTERN (general rule)

• Warm currents flow along the EAST coasts of continents in low and middle latitudes (Gulf Stream, Kuroshio, Brazil, Agulhas, East Australian).

• Cold currents flow along the WEST coasts (California, Humboldt, Canary, Benguela, West Australian) and are associated with coastal deserts (Atacama, Namib) and fog.

• Gyres: clockwise in the Northern Hemisphere, anticlockwise in the Southern.

• North Indian Ocean exception: the currents reverse with the monsoon (the Somali Current flows north-east in summer).

Warm-cold current convergences

Region	Warm current	Cold current
Grand Banks (NW Atlantic)	Gulf Stream	Labrador
Off NE Japan (NW Pacific)	Kuroshio	Oyashio
Off SE South America	Brazil	Falkland

Gulf Stream = Atlantic; Kuroshio = Pacific. Peru's fishery comes from upwelling, not convergence. Cold west-coast currents → deserts and fog.

44 **India is expanding exploration, processing and recycling of critical minerals under the National Critical Mineral Mission to cut import dependence. With reference to the global distribution of these minerals, consider the following statements:**

1. The 'Lithium Triangle' of Chile, Argentina and Bolivia holds lithium mainly in brines beneath salt flats (salars).
2. The Democratic Republic of the Congo is the world's largest producer of mined cobalt.
3. Australia is the world's largest producer of mined lithium, chiefly from hard-rock (spodumene) deposits.
4. In 2023, the Geological Survey of India reported inferred lithium resources in Reasi district of Jammu and Kashmir.

How many of the statements given above are correct?

(a) Only one

(b) Only two

(c) Only three

(d) All four ✓

The exam ranks everyone together, whatever language they write in. So does this.

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Explanation

The correct answer is (d) All four. Each statement is consistent with USGS mineral data and GSI reports. Geology decides the extraction method: brines in South American salars, hard rock in Australia.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. The Atacama (Chile), Salar de Uyuni (Bolivia) and Argentine salars hold lithium dissolved in brines. The brine is pumped into evaporation ponds - cheap, but slow and water-intensive in a hyper-arid desert.

• Statement 2 - CORRECT. The DRC (the Katanga Copperbelt) supplies about 70% of world cobalt, mostly as a by-product of copper mining. There are concerns over artisanal mining and child labour. China dominates cobalt refining.

• Statement 3 - CORRECT. Australia (e.g. Greenbushes, Western Australia) leads mine output from spodumene (a lithium-bearing pegmatite mineral). Much of the concentrate is refined in China. Chile is second.

• Statement 4 - CORRECT. In February 2023, GSI announced about 5.9 million tonnes of inferred lithium resources (G3 stage) at Salal-Haimana, Reasi. Later finds and auctions include Degana (Rajasthan). 'Inferred' is an early-stage estimate, not proven reserves.

TOPIC REVISION - CRITICAL MINERALS

• Definition: minerals vital for the economy or national security whose supply is at risk. India identified 30 critical minerals (2023), and the MMDR Act was amended in 2023 to allow auctions of critical-mineral blocks.

• Rare earth elements (REEs): China dominates mining and especially processing. India's REEs occur mainly in monazite beach sands (Kerala, Odisha, Tamil Nadu, Andhra Pradesh), handled by IREL.

• Other key locations: graphite (China, Mozambique); nickel (Indonesia - laterites); copper (Chile, Peru); platinum-group metals (South Africa - the Bushveld Complex).

• India's strategy: NCMM (2025), KABIL for overseas assets (e.g. lithium blocks in Argentina), and the Minerals Security Partnership.

GEOGRAPHY OF ORE FORMATION (simple)

Brines: closed basins in arid zones concentrate salts by evaporation. Pegmatites: late-stage granite melts rich in rare elements. Laterites: intense tropical weathering enriches nickel, aluminium (bauxite) and iron.

Critical minerals - leading producers

Mineral	Leading producer	Deposit type
Lithium	Australia	Hard rock (spodumene)
Cobalt	DR Congo	Copper-cobalt belt
Nickel	Indonesia	Laterite
Rare earths	China	Carbonatite / ionic clays

'Lithium Triangle' = brine; Australia = hard rock. Holding the largest RESOURCES (Bolivia) is not the same as being the largest PRODUCER (Australia). Treat 'inferred resources' as estimates.

45 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): The Kuril Islands, where Chikurachki volcano erupted in October 2026, separate the Sea of Japan from the Pacific Ocean.

Reason (R): The Kuril Islands form a volcanic island arc created by the subduction of the Pacific Plate.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true ✓

Write in your language. Be ranked against everyone. Nothing here is measured in a smaller room.

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Explanation

The correct answer is (D): A is false, but R is true. The Kurils separate the Sea of OKHOTSK (to the north-west) from the Pacific Ocean. They are a volcanic arc built above the subducting Pacific Plate.

ASSERTION - FALSE

• The Kuril chain runs about 1,200 km from Hokkaido (Japan) to the southern tip of Kamchatka (Russia), enclosing the Sea of Okhotsk.

• The Sea of Japan lies between Japan and the Korean Peninsula / Russian Primorye, and is reached through straits such as Tsushima and La Perouse (Soya).

• Chikurachki is on Paramushir Island in the northern Kurils.

REASON - TRUE

• The Pacific Plate sinks beneath the Okhotsk microplate along the Kuril-Kamchatka Trench (more than 9,000 m deep). Melting above the sinking slab feeds a line of volcanoes - a classic ocean-ocean convergence island arc, like Japan, the Aleutians and the Marianas.

• Since A is false, (D) is the answer regardless of whether R would explain it.

TOPIC REVISION - THE NORTH-WEST PACIFIC MAP

• Bering Sea - between Kamchatka/Siberia and Alaska; the Bering Strait links it to the Arctic.

• Sea of Okhotsk - enclosed by Kamchatka, the Kurils, Hokkaido and Sakhalin; it freezes seasonally.

• Sea of Japan (East Sea) - between Japan and Korea/Russia.

• Kamchatka - Shiveluch and Klyuchevskaya Sopka (the highest active volcano in Eurasia); the 'Volcanoes of Kamchatka' are a UNESCO site.

• Geopolitics: the southern Kurils (Etorofu/Iturup, Kunashiri, Shikotan, Habomai) are disputed between Russia and Japan - Japan's 'Northern Territories'.

RING OF FIRE FACTS

• About 75% of the world's active volcanoes and roughly 90% of earthquakes occur along the Pacific Ring of Fire.

North-west Pacific marginal seas

Sea	Enclosed by
Bering Sea	Siberia, Kamchatka, Alaska, Aleutians
Sea of Okhotsk	Kamchatka, Kurils, Hokkaido, Sakhalin
Sea of Japan	Japan, Korea, Russian Far East

Kurils → Sea of Okhotsk, not the Sea of Japan. When A is false, the answer is (D) if R is true - you don't need to test the explanation link.

46 **Cyclone Arnab crossed the coast between Bapatla and Visakhapatnam close to Yanam on 28 October 2026. Yanam is an enclave of which administrative unit, and in which river's delta does it lie?**

(a) Andhra Pradesh; the Krishna delta

(b) Puducherry; the Krishna delta

(c) Andhra Pradesh; the Godavari delta

(d) Puducherry; the Godavari delta ✓

Explanation

The correct answer is (d). Yanam is one of the four districts of the Union Territory of Puducherry. It is a former French settlement surrounded by Andhra Pradesh's East Godavari region and lies in the Godavari delta, near where the Gautami branch of the Godavari meets the Bay of Bengal.

OPTION-WISE ANALYSIS
• Option (a) - WRONG on both counts. Yanam is not part of Andhra Pradesh administratively, and the Krishna delta lies further south-west (around Vijayawada, Machilipatnam and Bapatla).
• Option (b) - WRONG. Puducherry is right, but the delta is wrong.
• Option (c) - WRONG. The delta is right, but the administrative unit is wrong.
• Option (d) - CORRECT.

TOPIC REVISION - UT OF PUDUCHERRY (four non-contiguous districts)
• Puducherry and Karaikal - on the Tamil Nadu coast (Karaikal in the Kaveri delta).
• Mahe - on the Kerala coast (Malabar).
• Yanam - in Andhra Pradesh (Godavari delta).
• All were French possessions, transferred de facto in 1954 and de jure by a treaty ratified in 1962.

TOPIC REVISION - GODAVARI-KRISHNA DELTA REGION
• Godavari: the longest peninsular river (about 1,465 km), rising at Trimbakeshwar (Nashik). It splits into the Gautami and Vasishta branches near Rajahmundry (Dowleswaram barrage).
• Krishna: rises near Mahabaleshwar; its delta lies south of the Godavari's; the Kolleru lake (a Ramsar site) lies between the two deltas.
• The KG basin is an offshore oil and gas region (e.g. the KG-D6 block).
• Low-lying deltas and a shallow, funnel-like Bay of Bengal make this coast prone to storm surges during post-monsoon cyclones.

MAP SEQUENCE (south to north, coastal Andhra)
Bapatla → Krishna delta → Kolleru → Godavari delta (Yanam, Kakinada) → Visakhapatnam → Srikakulam.

> Puducherry UT is scattered across three states - Tamil Nadu (Puducherry, Karaikal), Kerala (Mahe) and Andhra Pradesh (Yanam). Godavari is north of Krishna on the Andhra coast.

47 **In September 2026, Houthi forces were reported to have captured Mayun (Perim) Island, tightening their hold on a key Red Sea chokepoint. With reference to this chokepoint, consider the following statements:**

1. The Bab-el-Mandeb Strait connects the Red Sea with the Gulf of Aden.
2. Djibouti and Eritrea lie on its African side, while Yemen lies on its Arabian side.
3. Mayun (Perim) Island lies within the Strait of Hormuz, between Iran and Oman.

Which of the statements given above is/are correct?

(a) 1 and 2 only ✓
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Explanation

The correct answer is (a) 1 and 2 only. Statement 3 is wrong: Mayun (Perim), a small volcanic island belonging to Yemen, lies inside the Bab-el-Mandeb itself and divides it into two channels. The Strait of Hormuz is at the mouth of the Persian Gulf.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. Bab-el-Mandeb ('Gate of Grief/Tears') links the Red Sea to the Gulf of Aden and thence the Arabian Sea. With the Suez Canal at the north end of the Red Sea, it forms the shortest sea route between Europe and Asia.

• Statement 2 - CORRECT. Yemen is on the Arabian Peninsula side; Djibouti and Eritrea (its southern tip near Ras Dumeira) are on the Horn of Africa side. Djibouti hosts foreign military bases, including the US Camp Lemonnier and China's first overseas base.

• Statement 3 - WRONG. Mayun / Perim is in the Bab-el-Mandeb. The Strait of Hormuz separates Iran from Oman's Musandam peninsula and connects the Persian Gulf to the Gulf of Oman.

TOPIC REVISION - MAJOR MARITIME CHOKEPOINTS

• Strait of Hormuz: Persian Gulf ↔ Gulf of Oman; the largest oil chokepoint.

• Bab-el-Mandeb: Red Sea ↔ Gulf of Aden.

• Suez Canal: Mediterranean ↔ Red Sea (Egypt).

• Strait of Malacca: Andaman Sea ↔ South China Sea (Malaysia, Singapore, Indonesia); India's Andaman and Nicobar Islands sit near its western entrance.

• Bosphorus and Dardanelles: Black Sea ↔ Sea of Marmara ↔ Aegean (Turkey).

• Strait of Gibraltar: Mediterranean ↔ Atlantic (Spain-Morocco).

• Panama Canal: Atlantic ↔ Pacific.

WHY IT MATTERS TO INDIA

• Much of India's trade with Europe, the Mediterranean and North Africa passes the Red Sea route. Disruption forces diversion around the Cape of Good Hope, adding about 10-14 days to the voyage and raising freight and insurance costs.

• The Indian Navy has deployed ships in the Gulf of Aden for anti-piracy operations since 2008.

Key chokepoints

Chokepoint	Connects	Bordering countries
Hormuz	Persian Gulf - Gulf of Oman	Iran, Oman
Bab-el-Mandeb	Red Sea - Gulf of Aden	Yemen; Djibouti, Eritrea
Malacca	Andaman Sea - South China Sea	Malaysia, Singapore, Indonesia
Gibraltar	Mediterranean - Atlantic	Spain, Morocco

> Do not swap Hormuz (Iran-Oman, Persian Gulf) with Bab-el-Mandeb (Yemen-Djibouti/Eritrea, Red Sea). Perim/ Mayun sits in the middle of Bab-el-Mandeb.

The costliest mistake in this exam isn't a wrong answer. It's a year you can't get back.

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48 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): A positive Indian Ocean Dipole (IOD) event can partly offset the rainfall-suppressing effect of an El Niño on the Indian summer monsoon.

Reason (R): During a positive IOD, sea surface temperatures in the western Indian Ocean are warmer than in the eastern Indian Ocean, which strengthens convection and moisture supply towards the Indian subcontinent.

(a) Both A and R are true and R is the correct explanation of A ✓

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Explanation

The correct answer is (A): both A and R are true, and R correctly explains A. A positive IOD shifts warm water and rising air towards the western Indian Ocean, favouring monsoon rainfall over India, which can counter El Niño's drying influence.

ASSERTION - TRUE

• The 1997 monsoon was near-normal despite a very strong El Niño, partly because a strong positive IOD developed. In the 2026 forecasts, IMD expected positive IOD conditions late in the season to offset some of El Niño's impact. In the event, the 2026 monsoon ended at 87% of the Long Period Average (759.4 mm against 868.6 mm), the lowest since 2015, as El Niño strengthened.

REASON - TRUE, AND IT EXPLAINS A

• IOD is the difference in sea surface temperature between the western pole (the Arabian Sea / off East Africa) and the eastern pole (off Sumatra-Java).
• Positive IOD: the west is warmer and the east cooler → more convection over the western Indian Ocean and stronger moisture transport into India. It also brings more rain to East Africa and drought to Indonesia and Australia.
• Negative IOD: the reverse - generally unfavourable for the Indian monsoon.

TOPIC REVISION - ENSO

• Normal (Walker) circulation: rising air over the warm western Pacific (Indonesia), sinking over the cold eastern Pacific (Peru), with easterly trade winds at the surface.
• El Niño: the trade winds weaken; warm water shifts to the central and eastern Pacific; the rising limb moves east and sinking air settles over the Indian region → a weaker monsoon (not every time). The Peruvian upwelling and anchovy fishery suffer.
• La Niña: stronger trades, cooler eastern Pacific → usually a good Indian monsoon.
• Southern Oscillation: the see-saw in surface pressure between Tahiti and Darwin, measured by the Southern Oscillation Index (SOI). El Niño goes with a negative SOI.
• Other monsoon drivers: the Madden-Julian Oscillation (MJO), Eurasian snow cover (inversely related), the Tibetan Plateau's heating, and the Tropical Easterly Jet.

CURRENT-AFFAIRS LINK

• Global agencies (WMO) forecast that the 2026 El Niño could peak around December 2026 and possibly become the strongest on record since 1950. This is a forecast, not an observed outcome.

El Niño vs La Niña vs positive IOD

Phenomenon	Ocean	Typical effect on Indian monsoon
El Niño	Pacific (warm east)	Weaker
La Niña	Pacific (cool east)	Stronger
Positive IOD	Indian (warm west)	Stronger
Negative IOD	Indian (warm east)	Weaker

ENSO is a Pacific phenomenon; IOD is an Indian Ocean one - they are separate but interact. Positive IOD = warm WEST Indian Ocean = good for the Indian monsoon.

A test tells you where you stand. Daily practice is how you move.
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49 **Several volcanoes showed fresh activity in September-October 2026. Which one of the following volcanoes is NOT associated with a convergent (subduction) plate boundary?**

(a) Krakatau in the Sunda Strait, Indonesia

(b) Shiveluch on the Kamchatka Peninsula, Russia

(c) Kilauea on the Big Island of Hawaii, USA ✓

(d) Nevados de Chillán in the Andes of central Chile

Explanation

The correct answer is (c). Kilauea lies far from any plate boundary, in the middle of the Pacific Plate. It is a hotspot volcano fed by a mantle plume, and it forms runny basaltic shield volcanoes. The other three sit on subduction zones of the Pacific 'Ring of Fire' or the Sunda arc.

OPTION-WISE ANALYSIS

• Option (a) - Subduction-related. Krakatau sits on the Sunda arc, where the Indo-Australian Plate subducts beneath the Sunda (Eurasian) Plate. Its 1883 eruption and caldera collapse caused deadly tsunamis; Anak Krakatau ('child of Krakatau') emerged in 1927.

• Option (b) - Subduction-related. Shiveluch belongs to the Kuril-Kamchatka arc, fed by the Pacific Plate sinking beneath the Okhotsk microplate. It erupts explosive andesitic magma with ash columns many kilometres high.

• Option (c) - CORRECT (not subduction-related). Hawaii is the classic hotspot: as the Pacific Plate moves north-west over a stationary plume, a chain of islands forms that gets older to the north-west (the Hawaiian-Emperor seamount chain, with its famous bend about 47 million years old).

• Option (d) - Subduction-related. Nevados de Chillán lies in the Southern Volcanic Zone of the Andes, above the Nazca Plate subducting beneath the South American Plate.

TOPIC REVISION - VOLCANOES AND PLATE SETTINGS

• Convergent (subduction): ocean-ocean gives island arcs (Japan, Aleutians, Kurils); ocean-continent gives continental arcs (Andes, Cascades). Silica-rich (andesitic or rhyolitic) magma, viscous, trapping gas → explosive composite or strato-volcanoes (e.g. Mt Fuji, Mt St Helens).

• Divergent: mid-ocean ridges and rifts (Iceland on the Mid-Atlantic Ridge; the East African Rift). Basaltic, fluid lava.

• Hotspots: intraplate plumes (Hawaii, Yellowstone, Réunion). The Réunion plume is linked to the Deccan Traps of India (about 66 million years ago).

INDIA CONNECTION

• Barren Island (Andaman Sea) is India's only confirmed active volcano, part of the Burma-Andaman arc where the Indian Plate subducts beneath the Burma microplate. Narcondam is dormant. Baratang has mud volcanoes.

Volcano settings compared

Setting	Magma	Eruption style	Example
Subduction (convergent)	Andesitic, viscous	Explosive	Krakatau, Fuji, Andes
Divergent / rift	Basaltic, fluid	Effusive fissures	Iceland, East Africa
Hotspot (intraplate)	Basaltic, fluid	Effusive, shield	Kilauea, Mauna Loa

Most of the world's active volcanoes are on plate boundaries, so the 'odd one out' is usually a hotspot - Hawaii, Yellowstone or Réunion. Do not label Iceland a subduction volcano either.

If you only find out on result day, you found out too late.

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50 Cyclone Arnab, a very severe cyclonic storm and the first cyclone of 2026 over the Bay of Bengal, crossed the Andhra Pradesh coast on 28 October 2026. With reference to tropical cyclones, consider the following statements:

1. They generally form over oceans where the sea surface temperature exceeds about 26-27°C.
2. They rarely form within about 5° of the equator because the Coriolis force there is too weak.
3. Low vertical wind shear in the troposphere favours their intensification.
4. They usually intensify after landfall because of the increased friction over land.

How many of the statements given above are correct?

(a) Only one

(b) Only two

(c) Only three ✓

(d) All four

Explanation

The correct answer is (c) Only three. Statements 1, 2 and 3 describe the standard conditions for tropical cyclone formation. Statement 4 is wrong: a cyclone weakens after landfall because it loses its supply of warm, moist air and faces greater friction.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. Warm water (usually above about 26.5-27°C down to roughly 50 m depth) supplies the heat and moisture. Latent heat released when vapour condenses in towering clouds is the cyclone's 'fuel'.
• Statement 2 - CORRECT. The Coriolis force, which makes air spiral around the low-pressure centre, is zero at the equator and very weak near it. That is why cyclones seldom form between about 5°N and 5°S.
• Statement 3 - CORRECT. Vertical wind shear is the change in wind speed or direction with height. When it is low, the vertical heat engine stays aligned and the storm can organise. Strong shear tilts and tears the system apart. This is one reason the North Indian Ocean sees few cyclones in peak monsoon (July-August), when shear is high.
• Statement 4 - WRONG. Landfall cuts off the oceanic energy source, and surface friction increases, so the storm weakens. Heavy rain can still continue inland for days.

TOPIC REVISION - LIFE AND STRUCTURE OF A TROPICAL CYCLONE

• Other conditions: a pre-existing low-level disturbance; high humidity in the mid-troposphere; upper-level divergence that draws air out of the top of the storm.
• Structure: the eye (calm, sinking air), the eyewall (strongest winds and rain), and spiral rain bands.
• Rotation: anticlockwise in the Northern Hemisphere, clockwise in the Southern.
• IMD scale by maximum sustained wind: Depression (31-49 km/h) → Deep Depression (50-61) → Cyclonic Storm (62-88) → Severe (89-117) → Very Severe (118-166) → Extremely Severe (167-221) → Super Cyclonic Storm (222 and above).
• Seasons in the North Indian Ocean: two peaks - pre-monsoon (April-May) and post-monsoon (October-December).
• Naming: IMD New Delhi is the Regional Specialised Meteorological Centre that names cyclones for 13 member countries of the WMO/ESCAP Panel.

CURRENT-AFFAIRS LINK

• Cyclone Arnab formed from a low over the east-central Bay of Bengal, intensified into a very severe cyclonic storm, and crossed the coast between Bapatla and Visakhapatnam, close to Yanam, on 28 October 2026.

IMD classification of low-pressure systems

Category	Max sustained wind (km/h)
Depression	31-49
Deep Depression	50-61
Cyclonic Storm	62-88
Severe Cyclonic Storm	89-117
Very Severe Cyclonic Storm	118-166
Extremely Severe Cyclonic Storm	167-221
Super Cyclonic Storm	222 and above

'High' wind shear does not help a cyclone - it destroys it. Friction after landfall weakens the storm; the danger inland is rain and flooding, not stronger winds.

51 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): The Narmada and the Tapi enter the Arabian Sea through estuaries rather than forming large deltas.

Reason (R): The Narmada originates near Amarkantak on the Maikal range.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A ✓

(c) A is true but R is false

(d) A is false but R is true

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Explanation

The correct answer is (B): both A and R are true, but R does not explain A. The Narmada's source is irrelevant to why it forms an estuary. The real reasons are its rift-valley course, its relatively small sediment load, and strong tidal action at the mouth.

ASSERTION - TRUE

• The Narmada and Tapi flow WESTWARD through fault-bounded rift valleys (the Narmada between the Vindhya and Satpura ranges; the Tapi between the Satpura and the Ajanta / Satmala hills).

• They flow over hard rock, carry relatively less silt, and enter the Gulf of Khambhat area, which has a high tidal range. Strong tides flush out sediment, keeping the mouths open as estuaries.

REASON - TRUE, BUT IRRELEVANT

• The Narmada rises near Amarkantak (Madhya Pradesh), on the Maikal range. The Son (flowing north-east to the Ganga) and the Johila also rise in this region - which is why Amarkantak is called a 'hydrological node'. Its source does not explain the nature of its mouth.

TOPIC REVISION - EAST-FLOWING vs WEST-FLOWING PENINSULAR RIVERS

• East-flowing (Mahanadi, Godavari, Krishna, Kaveri): long courses over the gently east-tilted plateau, large sediment loads, form fertile deltas on the Bay of Bengal (low tidal range).

• West-flowing (Narmada, Tapi, Sabarmati, Mahi; short Western Ghats streams such as the Mandovi and Periyar): short, swift, through rifts or steep slopes, mostly forming estuaries.

• Features: the Dhuandhar falls of the Narmada (marble rocks, Bhedaghat, near Jabalpur); the Sardar Sarovar dam (Narmada); the Ukai dam (Tapi).

• Godavari = the largest peninsular river ('Dakshin Ganga'); Kaveri gets rain in both monsoons, so its flow is more even through the year.

WHY ESTUARIES FORM (general principle)

Low sediment supply + strong tides or waves + a steep, narrow continental shelf = estuary; heavy sediment + low tidal range + a broad shelf = delta.

Delta-forming vs estuary-forming rivers

Feature	East-flowing	West-flowing
Examples	Mahanadi, Godavari, Krishna, Kaveri	Narmada, Tapi, Mahi, Sabarmati
Course	Long, gentle gradient	Rift valleys; short and steep
Mouth	Deltas	Estuaries
Sea	Bay of Bengal	Arabian Sea

> A correct fact about the same river is not necessarily the explanation. Rift valley + low silt + tides explain the estuary; Amarkantak explains nothing about the mouth.

52 **On 26 August 2026, a flood originating from a glacier collapse in Tibet swept down the Bhote Koshi - Trishuli valley in Nepal's Rasuwa district. Through which river does this river system ultimately join the Ganga in India?**

(a) Kosi

(b) Gandak ✓

(c) Ghaghara

(d) Mahananda

Explanation

The correct answer is (b) Gandak. The Rasuwa Bhote Koshi becomes the Trishuli, which joins the Narayani (the Gandaki system) in central Nepal. The Narayani enters India as the Gandak and meets the Ganga near Patna (Sonepur-Hajipur).

OPTION-WISE ANALYSIS

• Option (a) - WRONG, and the main trap. The Kosi (Sapta Koshi) drains EASTERN Nepal through seven tributaries, including the Sun Koshi and Arun. Confusingly, there is ANOTHER river called Bhote Koshi in Sindhupalchok that feeds the Sun Koshi and hence the Kosi. The Rasuwa Bhote Koshi in the news is a different river, in the Gandaki basin.

• Option (b) - CORRECT. Gandaki system: Kali Gandaki + Trishuli (and others) → Narayani → Gandak in India → Ganga near Patna.

• Option (c) - WRONG. The Ghaghara (Karnali in Nepal) drains WESTERN Nepal and joins the Ganga near Chhapra.

• Option (d) - WRONG. The Mahananda rises in the Darjeeling hills and joins the Ganga (Padma) at Godagari in Bangladesh; it does not drain central Nepal.

TOPIC REVISION - HIMALAYAN TRIBUTARIES OF THE GANGA (west to east)

Yamuna → Ramganga → Ghaghara (Karnali) → Gandak (Narayani) → Burhi Gandak → Bagmati → Kosi → Mahananda.

• Kosi = 'Sorrow of Bihar' - huge sediment load and a shifting course.

• Several of these rivers are antecedent (older than the Himalaya) and cut deep gorges (e.g. the Kali Gandaki, Arun).

TOPIC REVISION - GLACIAL HAZARDS

• GLOF (Glacial Lake Outburst Flood): sudden release from a moraine- or ice-dammed lake, often triggered by an avalanche, ice calving or heavy rain.

• Cascading hazards: ice or rock avalanche → GLOF → debris flow (e.g. the Chamoli disaster of February 2021; the South Lhonak GLOF on the Teesta, October 2023).

• Scientists are still investigating the exact cause of the 2026 Rasuwa event (ice-rock avalanche, GLOF or a combination). ICIMOD reported in March 2026 that ice loss across the Hindu Kush Himalaya has roughly doubled since 2000.

• Response in India: NDMA guidelines on GLOFs; early-warning systems in Sikkim and Himachal Pradesh.

Nepal's three great river systems

System (Nepal)	In India	Joins Ganga near
Karnali	Ghaghara	Chhapra
Gandaki / Narayani	Gandak	Patna (Sonepur)
Sapta Koshi	Kosi	Kursela (Katihar)

> Nepal has TWO rivers named Bhote Koshi: Rasuwa's (Trishuli → Narayani → Gandak) and Sindhupalchok's (Sun Koshi → Kosi). Locate the district before answering.

Stamina is a skill. Marathon is where you build it before the exam asks for it.

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53 **The 2026 southwest monsoon withdrew from the entire country on 15 October, and northeast monsoon rains began over parts of south India the same day. With reference to the retreating and northeast monsoon, consider the following statements:**

1. The southwest monsoon withdraws first from Kerala and last from north-west India.
2. The Coromandel coast of Tamil Nadu receives a large share of its annual rainfall between October and December.
3. 'October heat' refers to hot and humid conditions during the transition after the monsoon's retreat.

Which of the statements given above is/are correct?

(a) 1 and 2 only	**(b) 2 and 3 only ✓**
(c) 1 and 3 only	(d) 1, 2 and 3

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Explanation

The correct answer is (b) 2 and 3 only. Statement 1 reverses the actual order: withdrawal begins in north-west India (west Rajasthan, normally from about mid-September) and is completed over the south and the peninsula last, around mid-October.

STATEMENT-WISE ANALYSIS

• Statement 1 - WRONG. The monsoon ARRIVES first in Kerala (normal onset about 1 June) and reaches west Rajasthan last (about 8 July). It WITHDRAWS in the opposite order: from north-west India first (about 17 September) to the whole country by about 15 October - the date it completed in 2026.

• Statement 2 - CORRECT. Tamil Nadu gets nearly half its annual rainfall in October-December. The north-east winds are dry over land, but they pick up moisture while crossing the Bay of Bengal and drop it on the Coromandel coast. Post-monsoon cyclones add to this.

• Statement 3 - CORRECT. As the monsoon retreats, skies clear, but the land is still moist. High temperature plus high humidity makes the weather oppressive - known as 'October heat'.

TOPIC REVISION - MECHANISM OF THE INDIAN MONSOON

• Summer: intense heating of the north-west plains and the Tibetan Plateau creates a thermal low. The ITCZ shifts north over the Ganga plain (as the monsoon trough). South-east trade winds cross the equator and become south-westerlies (Coriolis deflection). The Tropical Easterly Jet sets up over the peninsula and the subtropical westerly jet withdraws north of the Himalaya.

• Two branches: the Arabian Sea branch (Western Ghats - orographic rain; rain shadow over the Deccan) and the Bay of Bengal branch (deflected by the Arakan hills and the Himalaya, giving Meghalaya very heavy rain - Mawsynram and Cherrapunji).

• Retreat: the land cools, pressure rises, the trough weakens and shifts south, and the winds reverse to north-easterlies.

• Winter rain elsewhere: western disturbances from the Mediterranean bring rain and snow to north-west India (good for rabi wheat).

CURRENT-AFFAIRS LINK - MONSOON 2026

• All-India June-September rainfall was 759.4 mm, 12.6% below the Long Period Average of 868.6 mm. IMD linked this largely to El Niño. The east and north-east region recorded its driest monsoon since 1901.

Normal monsoon timeline (IMD)

Event	Region	Normal date
Onset	Kerala	About 1 June
Covers entire country	West Rajasthan last	About 8 July
Withdrawal begins	North-west India	About 17 September
Withdrawal complete	Entire country	About 15 October

Onset: south → north-west. Withdrawal: north-west → south. Tamil Nadu is the exception - it is wettest in the north-east monsoon, not the south-west monsoon.

54 **Suppose the RBI sells US dollars in the foreign exchange market to curb a sharp depreciation of the rupee, and does not take any offsetting (sterilising) action. What is the most likely immediate effect?**

(a) Foreign exchange reserves rise, and rupee liquidity in the banking system increases.

(b) Foreign exchange reserves fall, and rupee liquidity in the banking system is absorbed. ✓

(c) Foreign exchange reserves fall, and rupee liquidity in the banking system increases.

(d) Foreign exchange reserves stay the same, and only the forward premium on the rupee changes.

Explanation

The correct answer is (b). When the RBI sells dollars, banks pay it rupees. Reserves (the RBI's foreign assets) go down, and the rupees paid in are withdrawn from the banking system, so liquidity tightens.

OPTION-WISE ANALYSIS

• Option (a) - WRONG. Reserves RISE when the RBI BUYS dollars (to stop appreciation), and that injects rupees.
• Option (b) - CORRECT. Selling dollars → reserves fall → rupees absorbed → reserve money and banking liquidity contract.
• Option (c) - WRONG. It mixes up the direction of liquidity: buying dollars injects rupees; selling dollars absorbs them.
• Option (d) - WRONG. A spot sale changes reserves immediately. Forward-market intervention can delay the effect on reserves, but the question describes a spot sale.

STEP-BY-STEP ON THE RBI'S BALANCE SHEET

Assets: foreign currency assets fall. Liabilities: bank reserves (rupee deposits with the RBI) fall. Result: base money (M0) shrinks.

STERILISATION (offsetting the liquidity impact)

• To keep liquidity in line with the policy stance, the RBI can inject rupees back through OMO purchases (buying government bonds), variable-rate repo auctions, or CRR changes.
• When buying dollars, it absorbs the extra rupees through OMO sales, the SDF, or earlier, Market Stabilisation Scheme (MSS) bonds.

CURRENT-AFFAIRS LINK

• In Q1 FY27, reserves fell by US$ 8.1 billion on a BoP basis as FPIs pulled out US$ 9.6 billion. RBI dollar sales to smooth volatility tend to tighten rupee liquidity - one reason liquidity management accompanies currency defence.

THE 'IMPOSSIBLE TRINITY' (trilemma)

A country cannot simultaneously have a fixed exchange rate, free capital movement and an independent monetary policy. India manages the trade-off with a managed float and calibrated capital controls.

Forex intervention and liquidity

RBI action	Reserves	Rupee liquidity	Sterilisation tool
Sells USD (defend rupee)	Fall	Absorbed	OMO purchase / repo
Buys USD (curb appreciation)	Rise	Injected	OMO sale / SDF / MSS

Sell dollars = absorb rupees (tighter liquidity) and lower reserves. Buy dollars = inject rupees and higher reserves. Sterilisation reverses only the liquidity effect, not the reserve change.

55 **RBI data released on 1 September 2026 showed India's current account deficit at US$ 4.2 billion (0.5 per cent of GDP) in April-June 2026, with remittances of US$ 42.9 billion and a net FPI outflow of US$ 9.6 billion. With reference to the Balance of Payments, consider the following statements:**

1. Personal remittances from Indians working abroad are recorded under the secondary income component of the current account.
2. Foreign portfolio investment flows are recorded in the financial (capital) account, not in the current account.
3. A current account deficit has to be financed by net capital inflows, by drawing down foreign exchange reserves, or both.

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3 ✓

Explanation

The correct answer is (d) 1, 2 and 3. All three statements reflect the standard BoP structure (IMF BPM6) that the RBI follows. In Q1 FY27, a modest CAD combined with net capital outflows (led by FPIs) meant reserves were drawn down by US$ 8.1 billion on a BoP basis.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. The current account has: (i) goods (merchandise trade), (ii) services (IT, business services, travel), (iii) primary income (interest, dividends, wages - India pays out more on this, so it is a net outgo), and (iv) secondary income (current transfers, mainly personal remittances). India is the world's largest recipient of remittances.

• Statement 2 - CORRECT. FDI, FPI, external commercial borrowings (ECBs), NRI deposits and loans sit in the financial account. They create claims or liabilities, unlike current transactions.

• Statement 3 - CORRECT. By accounting identity, current account + capital/financial account + errors and omissions + change in reserves = 0. If capital inflows fall short of the CAD, the RBI's reserves fall (as in Q1 FY27).

READING THE Q1 FY27 NUMBERS (RBI, preliminary)

• The merchandise trade deficit was US$ 86.1 billion; the CAD widened from US$ 3.4 billion a year earlier.

• Cushions: net services US$ 51.6 billion and remittances US$ 42.9 billion, so the CAD stayed small at 0.5% of GDP.

• Financial account: net FDI +US$ 6.1 billion, but FPI –US$ 9.6 billion → an overall BoP deficit → reserves drawn down by US$ 8.1 billion.

KEY DISTINCTIONS

• 'BoP basis' change in reserves excludes valuation effects (exchange-rate and gold-price changes). The headline weekly reserve number includes them.

• CAD as a saving-investment gap: CAD = Investment – Domestic Saving. A widening CAD means the economy borrows from abroad to invest or consume.

• Sustainable CAD: around 2-2.5% of GDP is generally considered manageable for India (the 2013 'taper tantrum' came when the CAD was 4.8% in 2012-13).

• FDI is 'sticky' (long-term). FPI is 'hot money' (volatile) - that is why its outflows pressure the rupee.

India's BoP, Q1 FY27 (US$ billion, RBI preliminary)

Item	Q1 FY27
Merchandise trade deficit	86.1
Net services	51.6
Remittances	42.9
Primary income (net outgo)	10.5
Current account deficit	4.2 (0.5% of GDP)
Net FDI	+6.1

Explanation

The correct answer is (A): both A and R are true, and R correctly explains A. Because supply and demand peak at different times, surplus midday solar would otherwise be wasted. Batteries store it and release it during the evening peak.

ASSERTION - TRUE

• Curtailment = deliberately reducing renewable output because the grid cannot absorb or transmit it. Storage lets that energy be banked rather than lost.

REASON - TRUE, AND IT EXPLAINS A

• Daily mismatch (the 'duck curve'): net demand (demand minus solar) dips at midday and ramps up sharply at sunset. Without storage, the grid must curtail solar at noon and then rely on coal or gas plants that can ramp up in the evening.

• BESS charges at midday (cheap, abundant solar) and discharges at the evening peak, a practice called 'energy arbitrage' or 'time-shifting'.

TOPIC REVISION - GRID INTEGRATION TOOLS

• Storage: lithium-ion BESS (fast response, 2-4 hours), pumped storage hydro (long-duration, large scale).

• Transmission: moving power from resource-rich States (Rajasthan, Gujarat, Tamil Nadu) to demand centres - the Green Energy Corridors and PM-DHARA (intra-State transmission plus 50 GWh of BESS).

• Flexibility: flexible thermal operation, demand response, time-of-day tariffs (mandated for commercial and industrial consumers under the Electricity (Rights of Consumers) Amendment Rules, 2023).

• Market: Green Term-Ahead Market and Green Day-Ahead Market on power exchanges.

ECONOMIC ANGLE

• Battery costs have fallen sharply, making 'solar + storage' tariffs competitive.

• Policy support: Viability Gap Funding for BESS, an Energy Storage Obligation for discoms, and the PLI for Advanced Chemistry Cell (ACC) battery manufacturing (2021) to cut import dependence.

> Curtailment comes from a TIMING mismatch and from transmission limits - storage solves the first and transmission the second. Here R directly explains A.

57 **The Union Cabinet approved the PM-DHARA scheme (outlay ₹1,86,405 crore) on 30 September 2026. Which one of the following best describes its primary objective?**

(a) Subsidising rooftop solar panels so that households receive up to 300 units of free electricity a month

(b) Supporting farmers to install standalone solar irrigation pumps and to solarise existing grid-connected agricultural pumps

(c) Strengthening intra-State transmission and adding battery storage to evacuate up to 135 GW of renewable power ✓

(d) Producing green hydrogen through electrolysers and building demand in steel, refining and fertilisers

Explanation

The correct answer is (c). PM-DHARA (PM-Developing Harmonized and Accelerated Renewable-energy Access), under MNRE, funds the Intra-State Transmission System and 50 GWh of Battery Energy Storage Systems (BESS) so that up to 135 GW of renewable energy can be evacuated. Its guiding principle: 'transmission must precede renewable energy generation'.

OPTION-WISE ANALYSIS

• Option (a) - WRONG. That is PM Surya Ghar: Muft Bijli Yojana (2024) - rooftop solar for households with up to 300 free units a month, through central financial assistance.

• Option (b) - WRONG. That is PM-KUSUM (2019): Component A (decentralised solar plants on barren land), Component B (standalone solar pumps), Component C (solarising grid-connected pumps / feeder-level solarisation).

• Option (c) - CORRECT, for the reason in the verdict.

• Option (d) - WRONG. That is the National Green Hydrogen Mission (2023), with a target of 5 MMT a year by 2030 and the SIGHT incentive programme.

WHY TRANSMISSION AND STORAGE ARE THE BOTTLENECK (economic logic)

• A solar or wind plant takes about 2 years to build; transmission takes about 4. Without lines, generation is 'curtailed' (wasted), and investors face risk.

• Renewable power is intermittent: solar peaks at midday, while demand peaks in the evening. BESS shifts energy across time and supports grid stability.

• Helps States meet their Renewable Consumption Obligations and extends renewable development to newer regions (the North-East, Himalayan States).

• Design: greenfield lines through tariff-based competitive bidding; brownfield upgrades on a cost-plus basis; funds tied to milestones.

BIGGER PICTURE

• India's target: 500 GW of non-fossil capacity by 2030; net zero by 2070 (Panchamrit, COP26).

• Inter-State transmission: the Green Energy Corridor (Phases I and II) and the ISTS waiver for renewable projects.

• Storage support: Viability Gap Funding for BESS; pumped storage projects.

Clean-energy schemes compared

Scheme	Focus	Year
PM-KUSUM	Solar pumps, farm-level solar	2019
National Green Hydrogen Mission	Green hydrogen, electrolysers	2023
PM Surya Ghar	Household rooftop solar	2024
PM-DHARA	Intra-State transmission + BESS	2026

Match scheme to purpose: Surya Ghar = rooftop solar; KUSUM = farm pumps; Green Hydrogen Mission = electrolysers; PM-DHARA = intra-State transmission plus battery storage.

The same mistake, made twice, is a habit. This is where you catch it the first time.

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58 **On 30 September 2026, the Cabinet Committee on Economic Affairs approved Minimum Support Prices for six rabi crops for Marketing Season 2027-28, raising the wheat MSP by ₹25 to ₹2,610 per quintal. With reference to the MSP framework, consider the following statements:**

1. MSPs are approved by the Cabinet Committee on Economic Affairs on the basis of recommendations of the Commission for Agricultural Costs and Prices (CACP).
2. The 'at least 1.5 times the cost of production' benchmark announced in the Union Budget 2018-19 is computed on the A2+FL cost.
3. The CACP is a statutory body established under the Essential Commodities Act, 1955.

Which of the statements given above is/are correct?

(a) 1 and 2 only ✓	(b) 2 and 3 only
(c) 1 and 3 only	(d) 1, 2 and 3

Reading a solution shows you the answer. Sitting the test shows you yourself.

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Explanation

The correct answer is (a) 1 and 2 only. Statement 3 is wrong: the CACP is an attached office of the Ministry of Agriculture and Farmers Welfare, set up in 1965 (as the Agricultural Prices Commission). It is advisory and has no statutory basis.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. The CACP submits price policy reports for kharif and rabi seasons. The CCEA takes the final decision, considering other factors such as demand-supply, price trends, inter-crop parity and terms of trade.

• Statement 2 - CORRECT. Since 2018-19, MSP has been fixed at ≥1.5 times the A2+FL cost.

- A2 = actual paid-out costs (seed, fertiliser, hired labour, machinery, irrigation, leased-in land rent).
- FL = imputed value of family labour.
- C2 = comprehensive cost, which adds imputed rent on owned land and interest on owned capital. Farmer groups and the Swaminathan Commission (National Commission on Farmers, 2006) sought 1.5 times C2.

• Statement 3 - WRONG, for the reason in the verdict.

RMS 2027-28 FACTS (CCEA, 30 September 2026)

• Wheat: ₹2,610 per quintal (+₹25) against an A2+FL cost of ₹1,264 → a margin of about 106%. The smallest increase in years.

• Largest absolute increases: safflower (+₹675) and rapeseed-mustard (+₹413) - nudging diversification towards oilseeds and pulses to cut edible-oil and pulse imports.

• Margins ranged from about 50% to 106% over A2+FL across the six crops.

TOPIC REVISION - MSP AND PROCUREMENT

• 22 mandated crops get MSP (14 kharif, 6 rabi, 2 commercial: jute and copra), plus a fair and remunerative price (FRP) for sugarcane, fixed under the Essential Commodities Act. Sugarcane FRP is the one with a statutory basis.

• MSP has no legal guarantee. Effective procurement is mainly for wheat and paddy (FCI and State agencies, decentralised procurement), and for pulses and oilseeds under PM-AASHA (Price Support Scheme).

• Effects: an income floor and food security stocks for the PDS / PMGKAY, but also cropping distortions (the wheat-paddy bias, groundwater depletion in Punjab-Haryana) and fiscal cost through the food subsidy.

Cost concepts used by CACP

Concept	Includes
A2	Actual paid-out costs (inputs, hired labour, machinery, leased land rent)
A2+FL	A2 + imputed value of family labour (MSP benchmark)
C2	A2+FL + rent on owned land + interest on owned fixed capital

> CACP = attached office, advisory, not statutory. MSP uses A2+FL, not C2. Sugarcane's FRP is the statutory exception (Essential Commodities Act).

59 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): A fall in the unemployment rate always implies a rise in the Worker Population Ratio.

Reason (R): The unemployment rate is measured as a proportion of the labour force, not of the total population.

(a) Both A and R are true and R is the correct explanation of A	(b) Both A and R are true but R is NOT the correct explanation of A
(c) A is true but R is false	**(d) A is false but R is true ✓**

Explanation

The correct answer is (D): A is false, but R is true. Because the unemployment rate's denominator is the labour force, it can fall even when employment does not rise - for example if job-seekers drop out of the labour force. The WPR can then stay flat or even fall.

ASSERTION - FALSE (shown with numbers)
• Year 1: population 100, labour force 55, employed 52 → UR = 3/55 = 5.5%; WPR = 52%.
• Year 2: 2 discouraged job-seekers stop searching → labour force 53, employed still 52 → UR = 1/53 = 1.9% (falls sharply), but WPR = 52% (unchanged).
• If employment also dipped to 51 while the labour force shrank further, the UR could fall while the WPR FELL.
• So a falling UR does not ALWAYS mean a rising WPR.

REASON - TRUE
• UR = unemployed ÷ labour force. This is exactly why the UR alone can mislead. Since A is false, the answer is (D) regardless of whether R would explain it.

TOPIC REVISION - READING LABOUR DATA PROPERLY
• Always read LFPR, WPR and UR together. Identity: WPR = LFPR × (1 – UR).
• Discouraged-worker effect: during slowdowns, LFPR falls and the UR may look better than reality.
• Added-worker effect: in distress, more household members (often women) enter the labour force, which can raise the UR temporarily.
• Quality of jobs matters as well as the count: underemployment, unpaid family work (which counts as employed in PLFS) and informality.

CURRENT-AFFAIRS LINK
• In September 2026 the UR was 5.0% (rural 4.2%, urban 6.9%) with an LFPR of 55.5% - month-to-month moves in any one indicator need joint reading with the others before drawing conclusions.

> Watch for 'always' - one counterexample breaks it. The UR can fall because people leave the labour force. When A is false and R is true, the answer is (D).

60 **With reference to India's National Multidimensional Poverty Index (MPI) prepared by NITI Aayog, which one of the following statements is correct?**

(a) It is computed from household consumption expenditure data collected through the HCES of the NSO.	(b) It is jointly prepared and released by the Reserve Bank of India and the World Bank every year for each State.
(c) It classifies a household as poor only if its monthly income falls below an official monetary poverty line.	**(d) It uses 12 indicators across three equally weighted dimensions, including maternal health and bank accounts. ✓**

Explanation

The correct answer is (d). India's National MPI follows the Alkire-Foster method used by OPHI-UNDP for the Global MPI. It adds two indicators - maternal health and bank account - to the global 10, giving 12 indicators across health, education and standard of living, each weighted one-third.

OPTION-WISE ANALYSIS

• Option (a) - WRONG. The National MPI uses National Family Health Survey (NFHS) data, which covers health, nutrition, schooling and amenities. HCES consumption data is used for MONETARY poverty estimates (e.g. Tendulkar / Rangarajan-type lines).

• Option (b) - WRONG. It is prepared by NITI Aayog (the nodal agency for MPI under the Global Indices for Reform and Growth initiative), with OPHI and UNDP providing technical support, not the RBI or World Bank.

• Option (c) - WRONG. It is NON-monetary. A person is multidimensionally poor if deprived in at least one-third of the weighted indicators.

• Option (d) - CORRECT, for the reason in the verdict.

THE 12 INDICATORS

• Health (⅓): nutrition, child and adolescent mortality, maternal health.

• Education (⅓): years of schooling, school attendance.

• Standard of living (⅓): cooking fuel, sanitation, drinking water, electricity, housing, assets, bank account.

KEY MPI TERMS

• Headcount ratio (H): the share of people who are MPI-poor.

• Intensity (A): the average share of deprivations among the poor.

• MPI = H × A - so it captures both how many are poor and how poor they are.

MONETARY vs MULTIDIMENSIONAL POVERTY

• Monetary: a consumption-based line (Tendulkar 2011-12: 21.9%; the World Bank's international line, revised to $3.00 per day at 2021 PPP in 2025).

• Multidimensional: deprivations in outcomes and access. Both are needed - a household may cross the income line yet lack sanitation or schooling.

• Programmes that move MPI indicators: Swachh Bharat (sanitation), Ujjwala (cooking fuel), Jal Jeevan Mission (water), PM Awas Yojana (housing), Jan Dhan (bank account), Saubhagya (electricity), Poshan Abhiyaan (nutrition).

Global vs National MPI

Feature	Global MPI	National MPI (India)
Prepared by	OPHI and UNDP	NITI Aayog
Indicators	10	12 (adds maternal health, bank account)
Data (India)	NFHS	NFHS
Method	Alkire-Foster	Alkire-Foster

National MPI = NITI Aayog + NFHS data + 12 indicators. Global MPI = OPHI-UNDP + 10 indicators. Monetary poverty uses consumption surveys (HCES).

61 **The PLFS monthly bulletin for September 2026, released on 15 October 2026, reported an unemployment rate of 5.0 per cent and a Labour Force Participation Rate of 55.5 per cent for persons aged 15 years and above. With reference to these labour-market indicators, consider the following statements:**

1. The unemployment rate is the proportion of unemployed persons in the labour force, not in the total population.
2. The Current Weekly Status approach classifies a person's activity on the basis of a reference period of the preceding seven days.
3. The Worker Population Ratio is the proportion of employed persons in the labour force.
4. Since 2025, the PLFS has provided monthly estimates of labour indicators at the all-India level.

How many of the statements given above are correct?

(a) Only one

(b) Only two

(c) Only three ✓

(d) All four

Explanation

The correct answer is (c) Only three. Statements 1, 2 and 4 are correct. Statement 3 is wrong: the Worker Population Ratio is the share of employed persons in the TOTAL population (of the relevant age), not in the labour force.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. UR = unemployed ÷ labour force × 100, where labour force = employed + unemployed (those seeking or available for work).

• Statement 2 - CORRECT. CWS uses the 7 days before the survey and captures short-term (including seasonal) unemployment. Usual Status (principal + subsidiary, ps+ss) uses the preceding 365 days and gives lower unemployment rates.

• Statement 3 - WRONG. WPR = employed ÷ total population × 100. Share of employed in the labour force = 100 – UR.

• Statement 4 - CORRECT. The PLFS methodology was revamped in 2025 to give monthly all-India estimates (CWS) and quarterly estimates for rural and urban areas; the first monthly bulletin covered April 2025, and the September 2026 bulletin was the eighteenth.

HOW THE THREE INDICATORS RELATE

• LFPR = labour force ÷ population × 100.

• WPR = LFPR × (1 – UR/100). With an LFPR of 55.5% and a UR of 5.0%, WPR ≈ 55.5 × 0.95 ≈ 52.7%.

• Read them together: unemployment can fall because people LEAVE the labour force (discouraged workers), not only because jobs rise.

TOPIC REVISION - INDIA'S LABOUR MARKET FEATURES

• Low female LFPR, though rising. The September 2026 urban female LFPR was the highest since October 2025.

• Higher urban than rural unemployment (in September 2026, urban 6.9% vs rural 4.2%).

• A high share of self-employment and informality. Youth unemployment is markedly higher than the average.

• Data sources: PLFS (NSO, since 2017-18, replaced the five-yearly NSS Employment-Unemployment rounds); the Annual Survey of Unincorporated Sector Enterprises (ASUSE); EPFO payroll data (formal jobs proxy).

Labour-force indicators

Indicator	Formula	Sept 2026 (CWS, 15+)
LFPR	Labour force ÷ population	55.5%
WPR	Employed ÷ population	≈52.7% (derived)
Unemployment rate	Unemployed ÷ labour force	5.0%

UR's denominator is the labour force; WPR's and LFPR's denominator is the population. CWS = 7 days; usual status = 365 days.

62 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): An increase in the policy repo rate can ease depreciation pressure on the Indian rupee.

Reason (R): Higher domestic interest rates widen the interest-rate differential with other economies, making rupee-denominated assets more attractive to foreign portfolio investors.

(a) Both A and R are true and R is the correct explanation of A ✓	(b) Both A and R are true but R is NOT the correct explanation of A
(c) A is true but R is false	(d) A is false but R is true

Whoever sent you this knows their strengths, understands their gaps, and knows where they're headed. They're preparing with clarity and confidence—not fear. They know their edge. You can too.

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Explanation

The correct answer is (A): both A and R are true, and R correctly explains A. Better returns on rupee assets attract (or hold back) foreign capital. The resulting dollar inflows raise demand for rupees and support the exchange rate.

ASSERTION - TRUE

• In October 2026, a rate hike was seen as helping to curb foreign portfolio outflows and to reduce pressure on the rupee. In Q1 FY27, FPIs recorded a net outflow of US$9.6 billion, and reserves fell by US$8.1 billion on a BoP basis.

REASON - TRUE, AND IT EXPLAINS A (the mechanism, step by step)

1. The RBI raises the repo → money-market and government-bond yields rise.
2. The yield gap between India and, say, the US widens (the 'carry').
3. FPIs buy Indian debt or slow their selling → they need rupees → they sell dollars.
4. Greater demand for rupees supports its value (less depreciation).

CAVEATS FOR REVISION

• Interest rates are one factor among many: global risk appetite, the US Federal Reserve's actions, oil prices, the current account deficit and growth prospects also matter.
• Interest Rate Parity: in theory, the expected depreciation equals the interest differential. In practice, risk premia make the link loose.
• Trade-off: higher rates may slow domestic growth.

RELATED TOOLS TO DEFEND THE RUPEE

• RBI forex market intervention (selling dollars from reserves).
• Measures to attract deposits (e.g. FCNR(B) deposit incentives in 2013 and 2022).
• Relaxing FPI and ECB limits.

EXCHANGE-RATE REGIME

• India has a managed float: market-determined, but the RBI intervenes to curb excessive volatility. It does not target a particular level.
• Depreciation makes exports cheaper and imports dearer, and can feed imported inflation (oil, edible oils, electronics).

> Higher rates → capital inflow → currency support. This is the textbook link, but not a guarantee; UPSC accepts 'can'. Note that India's regime is a managed float, not a fixed peg.

63 **Retail inflation rose to 5.54 per cent in September 2026, as measured by the new Consumer Price Index series. Which one of the following statements about this CPI series is correct?**

(a) Its weights draw on the HCES 2023-24, and the weight of food and beverages was cut to about 37 per cent. ✓

(b) It shares the 2022-23 base year of the new GDP series so that real growth and inflation can be compared.

(c) It is compiled and published by the Reserve Bank of India as the anchor for its inflation-targeting regime.

(d) It has been replaced by the Wholesale Price Index as the measure behind the RBI's 4 per cent inflation target.

Explanation

The correct answer is (a). The new CPI (base 2024 = 100), first released in February 2026, uses weights from the Household Consumption Expenditure Survey 2023-24. As household spending has shifted towards services and non-food items, the weight of food and beverages fell to 36.75% (from about 46% in the 2012 series).

OPTION-WISE ANALYSIS

• Option (a) - CORRECT, for the reason in the verdict. The basket was also modernised, adding items such as smartphones, OTT subscriptions and e-commerce purchases, and the number of broad divisions was expanded.
• Option (b) - WRONG. The CPI base is the calendar year 2024, while the new GDP series uses the financial year 2022-23. Different statistics are rebased on different schedules.
• Option (c) - WRONG. The CPI is compiled by the National Statistics Office (NSO), MoSPI. The RBI uses CPI-Combined headline inflation as the target variable, but does not compile it.
• Option (d) - WRONG. Since the Urjit Patel Committee (2014) and the 2016 amendment to the RBI Act, the target is based on CPI-Combined (4% ± 2%). The WPI, compiled by the Office of the Economic Adviser in DPIIT, tracks wholesale prices of goods only (no services).

TOPIC REVISION - INFLATION INDICES IN INDIA

• CPI-Combined (NSO): retail prices; goods and services; urban + rural; monthly.
• CPI-IW (Labour Bureau): for industrial workers; used for DA of government employees.
• CPI-AL/RL (Labour Bureau): agricultural and rural labourers.
• WPI (DPIIT): producer and wholesale goods prices; no services; base 2011-12.
• GDP deflator: the broadest measure; quarterly.

KEY CONCEPTS

• Headline vs core: core excludes volatile food and fuel and shows underlying demand pressure.
• Why a lower food weight matters: the index becomes less volatile to vegetable price shocks. In September 2026, though, food inflation (CFPI) jumped to 7.74% and pulled the headline up.
• Base effect: a low index a year earlier inflates current year-on-year inflation, and vice versa.

Inflation measures compared

Index	Compiled by	Covers	Base
CPI-Combined	NSO, MoSPI	Goods and services, retail	2024
WPI	Office of Economic Adviser, DPIIT	Goods only, wholesale	2011-12
GDP deflator	NSO, MoSPI	All domestic output	2022-23

CPI base = 2024 (calendar year); GDP base = 2022-23 (financial year). NSO compiles the CPI; DPIIT compiles the WPI; the RBI only targets CPI-Combined.

The exam will ask what you avoided. Find out what that is while it still costs nothing.

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64 **MoSPI's estimates released on 31 August 2026 - the first quarterly estimates under the new national accounts series with base year 2022-23 - showed real GDP growth of 7.8 per cent and nominal GDP growth of 10.3 per cent for April-June 2026. Consider the following statements:**

1. These figures imply that the GDP deflator rose by roughly 2.3 per cent over the year.
2. GDP is obtained by adding product taxes to GVA at basic prices and subtracting product subsidies.
3. Under the 'double deflation' method, only the value of output is deflated, using a single price index.

Which of the statements given above is/are correct?

(a) 1 and 2 only ✓

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Every explanation here was written to teach, not to justify an answer key.

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Explanation

The correct answer is (a) 1 and 2 only. Statement 3 is wrong: double deflation deflates output AND intermediate inputs separately, each with its own price index, and real value added is the difference. The new series uses it for manufacturing.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. GDP deflator = Nominal GDP ÷ Real GDP × 100. Its growth ≈ (1 + nominal growth) ÷ (1 + real growth) − 1 = 1.103 ÷ 1.078 − 1 ≈ 2.3%. As a rule of thumb, nominal growth ≈ real growth + deflator inflation (10.3 ≈ 7.8 + 2.5; the exact figure is about 2.3).

• Statement 2 - CORRECT. GDP (at market prices) = GVA at basic prices + product taxes − product subsidies. Product taxes include GST and customs duties. Production taxes and subsidies (e.g. land revenue, stamp duty) are already inside GVA at basic prices.

• Statement 3 - WRONG. Single deflation divides value added by one output price index. It distorts real growth when input prices (oil, metals) and output prices move differently. Double deflation corrects this; the 2022-23 series uses an Output Producer Price Index for this purpose.

TOPIC REVISION - NATIONAL INCOME AGGREGATES

• GDP = output produced within India's territory.

• GNP (GNI) = GDP + Net Factor Income from Abroad (NFIA). India's NFIA is usually negative.

• NDP = GDP − depreciation (Consumption of Fixed Capital).

• NNP at factor cost = National Income (NNP at market prices − net indirect taxes).

• Real (constant-price) figures remove the price effect; nominal (current-price) figures include it.

WHY BASE YEARS CHANGE

• To update the structure of the economy, the weights and the data sources (e.g. MCA-21 corporate data, GST data). The previous series used 2011-12. The new 2022-23 series was released on 27 February 2026.

• Changing the base also revises past levels and growth rates, so cross-series comparisons need care. The Q1 FY27 release revised earlier quarters.

DEFLATOR vs CPI

The GDP deflator covers all domestically produced final goods and services (including investment goods and exports) and changes weights every period. CPI tracks a fixed household consumption basket, including imports consumed.

Q1 FY27 (April-June 2026) at a glance - MoSPI, 2022-23 base

Indicator	Growth (y-o-y)
Real GDP	7.8%
Nominal GDP	10.3%
Real GVA	8.2%
Implied GDP deflator	about 2.3%

GVA → GDP: add PRODUCT taxes, subtract PRODUCT subsidies. Double deflation deflates two series (output and inputs), not one. Nominal growth minus real growth approximates deflator inflation, not CPI inflation.

65 **On 7 October 2026, the RBI's Monetary Policy Committee raised the policy repo rate by 25 basis points to 5.50 per cent, placing the Standing Deposit Facility (SDF) rate at 5.25 per cent and the Marginal Standing Facility (MSF) rate at 5.75 per cent. With reference to the RBI's monetary policy framework, consider the following statements:**

1. The SDF allows the RBI to absorb surplus liquidity from banks without having to give government securities as collateral.
2. Under the MSF, banks can borrow overnight at a rate above the repo rate, including by dipping into their SLR securities up to a limit.
3. A change in the Cash Reserve Ratio automatically shifts the width of the policy rate corridor.
4. The inflation target under the RBI Act is fixed by the Monetary Policy Committee itself.

How many of the statements given above are correct?

(a) Only one	**(b) Only two ✓**
(c) Only three	(d) All four

Explanation

The correct answer is (b) Only two. Statements 1 and 2 are correct. The CRR is a separate reserve requirement that does not set the corridor, and the inflation target is set by the Central Government in consultation with the RBI, not by the MPC.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. The SDF, introduced in April 2022 under the amended Section 17 of the RBI Act, lets banks park surplus funds with the RBI WITHOUT the RBI giving collateral. That is its key difference from the fixed-rate reverse repo, which needed government securities. The SDF rate is the FLOOR of the Liquidity Adjustment Facility (LAF) corridor.

• Statement 2 - CORRECT. The MSF is the CEILING of the corridor - an emergency overnight window at repo plus 25 bps. Banks may borrow under it by dipping into the SLR (Statutory Liquidity Ratio) portfolio up to a prescribed limit. The Bank Rate is aligned with the MSF rate.

• Statement 3 - WRONG. The CRR is the share of deposits banks must keep as cash with the RBI. Changing it alters the liquidity available in the system, but the corridor (SDF - repo - MSF) is set separately by the policy rates.

• Statement 4 - WRONG. Under Section 45ZA of the RBI Act (2016 amendment), the Central Government, in consultation with the RBI, sets the target once every five years - currently 4% CPI inflation with a band of 2-6%. The MPC decides the repo rate needed to achieve it.

TOPIC REVISION - THE LAF CORRIDOR AFTER 7 OCTOBER 2026

SDF 5.25% (floor) → Repo 5.50% (policy rate) → MSF and Bank Rate 5.75% (ceiling). The corridor is 50 bps wide, symmetric around the repo rate.

MPC BASICS

• Six members: the Governor (chair, with a casting vote), the Deputy Governor in charge of monetary policy, one RBI officer nominated by the Central Board, and three external members appointed by the Centre (4-year terms). Quorum is 4. It meets at least four times a year.

• If the target is missed for three consecutive quarters, the RBI must report the reasons and remedial action to the Government (Section 45ZN).

TRANSMISSION (step by step)

Repo up → banks' marginal cost of funds up → lending rates (EBLR - external benchmark linked loans - reset quickly; MCLR loans with a lag) rise → credit demand and spending cool → demand-pull inflation eases. Context for the hike: CPI inflation rose to 5.54% in September 2026 and the MPC shifted its stance to 'calibrated tightening'.

RBI policy rates (after 7 October 2026)

Instrument	Rate	Role
Standing Deposit Facility	5.25%	Floor; collateral-free absorption
Policy repo rate	5.50%	Operating target
MSF / Bank Rate	5.75%	Ceiling; emergency borrowing

SDF = floor and collateral-free; MSF = ceiling (repo + 25 bps). The target is set by the Government, and the MPC only sets the rate. CRR and SLR are reserve ratios, not corridor rates.

Well prepared is not the same as competitive. Know which one you are.

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66 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): In the GST Council, neither the Union nor the States acting together without the Union can carry a decision on their own.

Reason (R): The GST Council is a statutory body created under the Central Goods and Services Tax Act, 2017.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false ✓

(d) A is false but R is true

Explanation

The correct answer is (C): A is true, but R is false. The GST Council is a CONSTITUTIONAL body under Article 279A, inserted by the 101st Amendment Act, 2016. Its voting rules make both the Union and the States indispensable.

ASSERTION - TRUE

• Decisions need a three-fourths majority of the weighted votes of members present and voting.
• The Union's vote carries one-third of the total; all the States together carry two-thirds.
• So the States alone have at most 66.7% (below 75%), and the Union alone has 33.3%. Each side holds a veto.
• Quorum: half of the total members.

REASON - FALSE

• The Council derives from the Constitution (Article 279A) and was constituted in September 2016. The CGST Act and the State GST Acts are the laws that levy the tax; they do not create the Council.
• In Mohit Minerals (2022), the Supreme Court held that the Council's recommendations are persuasive, not binding on Parliament and State legislatures - an affirmation of fiscal federalism.

TOPIC REVISION - GST STRUCTURE

• Members: the Union Finance Minister (chair), the Union MoS (Finance), and the finance or taxation ministers of every State and the UTs with legislatures.
• Levies: CGST + SGST on intra-State supplies; IGST on inter-State supplies and imports (collected by the Centre and apportioned).
• Article 246A gives concurrent power to the Union and the States to tax supplies; Article 269A covers IGST.
• Rate restructuring at the 56th meeting (September 2025) moved to a two-slab structure of 5% and 18%, with a special 40% rate on select demerit goods.
• Outside GST: crude petroleum, petrol, diesel, ATF and natural gas (until the Council recommends otherwise); alcohol for human consumption is constitutionally excluded.

CURRENT-AFFAIRS LINK

• The 57th meeting, held on 7 October 2026 after a gap of more than a year, focused on process and compliance reforms (ITC, refunds, registration) rather than rate changes.

GST Council voting

Party	Weight of votes	Can it pass a decision alone?
Union	1/3	No
All States together	2/3	No
Required to pass	3/4 of weighted votes	-

GST Council = constitutional (Article 279A), not statutory. Weighted voting (Centre ⅓, States ⅔, with a ¾ majority needed) gives each side a veto.

67 The Sixteenth Finance Commission's award period (2026-27 to 2030-31) began in April 2026. Which one of the following statements about its recommendations, as accepted by the Union, is correct?

(a) It raised the States' share in the divisible pool of central taxes from 41 per cent to 42 per cent.

(b) It brought cesses and surcharges into the divisible pool shared with States under Article 270.

(c) Its recommendations on tax devolution are binding on the Union Government under Article 280.

(d) It added each State's contribution to national GDP as a new criterion for horizontal devolution. ✓

The exam doesn't ask how much you studied. It asks where you stand among everyone who studied too.

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Explanation

The correct answer is (d). The XVI-FC (Chairman: Dr Arvind Panagariya) introduced 'contribution to GDP' (10% weight) in the horizontal devolution formula, replacing the earlier tax-and-fiscal-effort criterion. This rewards States' economic contribution alongside equity criteria.

OPTION-WISE ANALYSIS

• Option (a) - WRONG. The vertical share was RETAINED at 41% (as under the XV-FC). Historical path: 32% (XIII) → 42% (XIV) → 41% (XV - adjusted for J&K becoming a UT) → 41% (XVI).

• Option (b) - WRONG. Cesses and surcharges are EXCLUDED from the divisible pool (Articles 270 and 271). Their rising share means States' effective share of gross tax revenue is lower than 41% - estimated at about 29-30%. That is a major federal grievance.

• Option (c) - WRONG. Finance Commission recommendations are advisory. By convention the Union accepts the devolution recommendations, and they are laid before Parliament with an Explanatory Memorandum on action taken (Article 281).

• Option (d) - CORRECT, for the reason in the verdict.

TOPIC REVISION - FINANCE COMMISSION

• Article 280: constituted by the President every five years (or earlier). A chairman plus four members; qualifications are set by the Finance Commission (Miscellaneous Provisions) Act, 1951.

• Mandate: vertical devolution (Centre → States), horizontal distribution (among States), grants-in-aid (Article 275), measures to augment State Consolidated Funds for local bodies, and other matters referred.

• XVI-FC specifics: it discontinued revenue-deficit, sector-specific and State-specific grants; recommended grants for rural and urban local bodies and for disaster management; and stressed ending off-budget borrowings.

HORIZONTAL CRITERIA - IDEA BEHIND THEM

• Equity: income distance / per-capita GSDP distance, population, area, forest cover.

• Efficiency: demographic performance (rewarding lower fertility), and now GDP contribution.

DISTINGUISH

• Finance Commission = constitutional (Article 280); NITI Aayog = executive body (2015) with no fund-allocating role; GST Council = constitutional (Article 279A).

Vertical devolution across Finance Commissions

Finance Commission	States' share of divisible pool
Thirteenth	32%
Fourteenth	42%
Fifteenth	41%
Sixteenth	41%

41% is retained, not raised. Cesses and surcharges stay OUTSIDE the divisible pool. Finance Commission awards are advisory, even though they are routinely accepted.

A limited number of places. One honest question: are you holding yours?

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68 **CGA data released on 30 October 2026 showed that the Centre's fiscal deficit for April-September 2026 reached 42.1 per cent of the full-year Budget Estimate. With reference to fiscal indicators and the fiscal framework, consider the following statements:**

1. The fiscal deficit equals total expenditure minus total receipts excluding borrowings and other liabilities.
2. The primary deficit equals the fiscal deficit minus interest payments.
3. The revenue deficit equals revenue expenditure minus the sum of revenue receipts and non-debt capital receipts.
4. From 2026-27, the Centre's medium-term fiscal anchor is a debt-to-GDP target of 50±1 per cent by 2030-31.

How many of the statements given above are correct?

(a) Only one

(b) Only two

(c) Only three ✓

(d) All four

Explanation

The correct answer is (c) Only three. Statements 1, 2 and 4 are correct. Statement 3 is wrong: revenue deficit = revenue expenditure – revenue receipts only. Non-debt capital receipts (disinvestment, loan recoveries) are not part of the revenue account.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. Fiscal deficit = total expenditure – (revenue receipts + non-debt capital receipts). It equals the government's total borrowing requirement for the year.

• Statement 2 - CORRECT. Primary deficit = fiscal deficit – interest payments. It shows borrowing needed for current policies, excluding the cost of past debt. A primary surplus means past debt alone drives borrowing.

• Statement 3 - WRONG. Revenue deficit = revenue expenditure – revenue receipts (tax + non-tax). A revenue deficit means borrowing is financing consumption-type spending. Related terms: the effective revenue deficit = revenue deficit – grants for the creation of capital assets.

• Statement 4 - CORRECT. Budget 2025-26 announced, and Budget 2026-27 applied, a shift from annual fiscal-deficit targets to a debt-based anchor: keep the deficit such that central government debt declines to 50±1% of GDP by 31 March 2031. The FY27 fiscal deficit is budgeted at about 4.3% of GDP.

WORKED ILLUSTRATION FROM H1 FY27 (CGA, provisional)

• Fiscal deficit: ₹7.14 lakh crore = 42.1% of BE ₹16.96 lakh crore (36.5% at the same point last year).

• Drivers: net tax collection at 44.5% of BE, and higher subsidies (food subsidy up about 16%).

• Interpreting it: H1 figures are a progress check. Spending and receipts are uneven through the year, so they are not final outcomes.

TOPIC REVISION - FRBM

• FRBM Act 2003; amended in 2018 after the N.K. Singh Committee (debt as the primary anchor; a 3% fiscal deficit target; an escape clause of 0.5% of GDP for national security, calamity or a structural shock).

• Sources of financing the deficit: market borrowings (dated securities, T-bills), small savings (NSSF), external loans, and drawdown of cash balance.

WHY QUALITY OF DEFICIT MATTERS

Borrowing for capex (roads, rail) builds assets and has a higher multiplier; borrowing for revenue spending (salaries, subsidies, interest) does not.

Deficit formulas

Indicator	Formula
Fiscal deficit	Total expenditure – (revenue receipts + non-debt capital receipts)
Revenue deficit	Revenue expenditure – revenue receipts
Effective revenue deficit	Revenue deficit – grants for capital assets
Primary deficit	Fiscal deficit – interest payments

> Revenue deficit uses only revenue items. Fiscal deficit = borrowing; primary deficit = fiscal deficit minus interest. Do not confuse 'percentage of BE used' with 'percentage of GDP'.

69 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): A depreciation of the rupee against the US dollar raises the rupee cost of India's crude oil imports.

Reason (R): India meets more than four-fifths of its crude oil requirement through imports.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A ✓

(c) A is true but R is false

(d) A is false but R is true

Explanation

The correct answer is (B): both A and R are true, but R does not explain A. A is a price-conversion effect - dollar-priced oil needs more rupees after depreciation. R explains why this matters so much for India (high import dependence), not why the cost rises.

ASSERTION - TRUE

• Crude is invoiced in US dollars. If the rupee moves from, say, ₹85 to ₹88 per dollar, a barrel costing $80 goes from ₹6,800 to ₹7,040 - about 3.5% dearer even though the dollar price is unchanged.

REASON - TRUE

• India imports roughly 85-88% of its crude oil needs (Petroleum Planning & Analysis Cell data), making the petroleum, oil and lubricants (POL) import bill the largest single item in the trade deficit. This is why oil-price and rupee movements together drive the trade deficit.

WHY R IS NOT THE EXPLANATION

• Even a country importing 10% of its oil would see that oil's rupee cost rise on depreciation. Import dependence amplifies the IMPACT on the economy; it does not CAUSE the price effect.

TOPIC REVISION - EFFECTS OF RUPEE DEPRECIATION

• Imports dearer → imported inflation (fuel, fertiliser, edible oil, electronics) → pressure on CPI and on the fiscal subsidy bill.
• Exports more competitive in price, though the effect depends on demand elasticity and on imported inputs (e.g. gems and jewellery, electronics assembly).
• J-curve: the trade balance may worsen first (volumes adjust slowly) before it improves.
• External debt: the rupee cost of servicing dollar-denominated debt (ECBs) rises.
• Remittances: worth more in rupees.

TERMS TO KNOW

• Depreciation (market-driven fall) vs devaluation (official cut under a fixed regime - e.g. India in 1966 and 1991).
• NEER/REER: trade-weighted nominal/real effective exchange rates. A REER above 100 indicates real overvaluation relative to the base.

> 'Both true' does not imply 'R explains A'. Here R explains the significance, not the mechanism. Distinguish depreciation (market) from devaluation (policy).

The exam ranks everyone together, whatever language they write in. So does this.

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70 A bird species is assessed as Critically Endangered by the IUCN. Its surviving wild population is concentrated in the arid grasslands of the Thar, where collisions with overhead power lines are a leading cause of death. A conservation breeding programme in Jaisalmer district uses artificial insemination to build its captive stock. Which species is this?

(a) Great Indian Bustard (Ardeotis nigriceps) ✓

(b) Lesser Florican (Sypheotides indicus)

(c) Bengal Florican (Houbaropsis bengalensis)

(d) Sarus Crane (Antigone antigone)

Explanation

The correct answer is (a) Great Indian Bustard. It is the State Bird of Rajasthan, and most of the remaining wild birds live in and around Desert National Park. They are heavy birds with poor frontal vision, so they cannot avoid power lines in flight. Captive breeding centres at Sam (Sudasari) and Ramdevra in Jaisalmer, run with the Wildlife Institute of India, use artificial insemination - the captive stock reached 94 birds by mid-2026.

OPTION-WISE ANALYSIS

• Option (a) - CORRECT, for the reasons in the verdict. Further points:
- Conservation status: IUCN Critically Endangered; Schedule I of the Wildlife (Protection) Act; CMS Appendix I.
- Threats: power lines; conversion of grasslands to farms and plantations (grasslands are wrongly treated as 'wastelands'); hunting historically; and very slow breeding (one egg per clutch).
- Courts: the Supreme Court (2021) ordered undergrounding of power lines in priority GIB habitat. In 2024 it modified this to a case-by-case expert-committee approach, given renewable-energy needs.

• Option (b) - WRONG. The Lesser Florican is also Critically Endangered. But it is the smallest bustard, a monsoon breeder of western and central Indian grasslands (Rajasthan, Gujarat, Madhya Pradesh, Maharashtra), known for the male's leaping display. It is not the Thar power-line species with Jaisalmer AI breeding.

• Option (c) - WRONG. The Bengal Florican is Critically Endangered but lives in the terai and Brahmaputra floodplain grasslands (Uttar Pradesh terai, Assam, Arunachal Pradesh; also Nepal and Cambodia). Manas and Kaziranga are key sites.

• Option (d) - WRONG. The Sarus Crane is Vulnerable (not Critically Endangered). It is the world's tallest flying bird and the State Bird of Uttar Pradesh. It lives in wetlands and paddy fields of the Gangetic plains - for example at the new Ramsar Site Sauj Jheel.

TOPIC REVISION - THE FOUR INDIAN BUSTARDS

Great Indian Bustard (CR), Lesser Florican (CR), Bengal Florican (CR), and the MacQueen's Bustard (a winter visitor to the Thar; Vulnerable). Three of the four resident bustards are Critically Endangered - a sign of how undervalued open natural ecosystems (grasslands and semi-arid scrub) are.

RECOVERY TOOLS

Conservation breeding, the 'jumpstart' approach (moving captive-laid eggs to wild habitat, as with Gujarat's first chick in 2026), bird diverters on power lines, and grassland restoration (enclosures in Desert National Park).

Bustards and the Sarus compared

Species	IUCN status	Core range in India
Great Indian Bustard	Critically Endangered	Thar desert grasslands (Rajasthan), Kachchh
Lesser Florican	Critically Endangered	Monsoon grasslands of western/central India
Bengal Florican	Critically Endangered	Terai & Brahmaputra floodplain grasslands
Sarus Crane	Vulnerable	Wetlands and paddy fields of the Gangetic plains

Three bustards are Critically Endangered - separate them by habitat: Thar (Great Indian Bustard), western/central monsoon grasslands (Lesser Florican), terai/Brahmaputra (Bengal Florican). The Sarus is a Vulnerable crane.

71 **In October 2026, Sukhna Wetland (Chandigarh) and Sauj Jheel (Uttar Pradesh) were designated as Ramsar Sites, taking India's total to 103. With reference to the Ramsar Convention and wetland conservation in India, consider the following statements:**

1. The Convention on Wetlands was signed in 1971 in the Iranian city of Ramsar, and India became a party in 1982.
2. Designation as a Ramsar Site automatically gives a wetland the status of a protected area under the Wildlife (Protection) Act, 1972.
3. In India, wetlands are regulated under the Wetlands (Conservation and Management) Rules, 2017, framed under the Environment (Protection) Act, 1986.
4. Regularly supporting 20,000 or more waterbirds is one of the criteria for identifying a Wetland of International Importance.

How many of the statements given above are correct?

(a) Only one

(b) Only two

(c) Only three ✓

(d) All four

Write in your language. Be ranked against everyone. Nothing here is measured in a smaller room.

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Explanation

The correct answer is (c) Only three. Statements 1, 3 and 4 are correct. Statement 2 is wrong: Ramsar listing is an international recognition and does not by itself create a protected area under the Wildlife (Protection) Act. Such status needs separate notification as a sanctuary, national park or reserve.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. The Convention was signed on 2 February 1971 (now World Wetlands Day) in Ramsar, Iran, and came into force in 1975. It entered into force for India on 1 February 1982. Chilika Lake and Keoladeo were India's first Ramsar Sites (1981).

• Statement 2 - WRONG, for the reason in the verdict. Some Ramsar Sites are also sanctuaries or national parks (for example Keoladeo National Park), but many are not.

• Statement 3 - CORRECT. The 2017 Rules (under the EPA, 1986) set up State Wetland Authorities and prohibit activities such as conversion for non-wetland use, encroachment, solid-waste dumping and untreated effluent discharge in notified wetlands.

• Statement 4 - CORRECT. This is Criterion 5 of the nine Ramsar criteria. Criterion 6 is supporting 1% of the individuals in a population of one waterbird species. Sauj Jheel regularly supports over 30,000 waterbirds.

THE TWO NEW SITES (designated 15 October 2026)

• Sukhna Wetland, Chandigarh: a peri-urban reservoir at the foot of the Shivalik Hills. It is a wintering ground on the Central Asian Flyway and hosts the Common Pochard (Vulnerable) and Pallas's Fish Eagle (Endangered). Its main threat is sedimentation from the eroding catchment.

• Sauj Jheel, Uttar Pradesh: a shallow floodplain lake in the Ganga basin, near the Saman Bird Sanctuary Ramsar Site. It is an Important Bird and Biodiversity Area, with Sarus Crane and Greater Spotted Eagle (both Vulnerable).

CONVENTION FEATURES TO REMEMBER

• It is not a UN convention, though UNESCO is the depositary.

• It is built on 'wise use' - conservation with sustainable use.

• The Montreux Record lists sites under threat (India: Keoladeo and Loktak).

• It covers marine areas up to 6 m deep at low tide.

India's newest Ramsar Sites (15 October 2026)

Site	State/UT	Wetland type	Notable species
Sukhna Wetland	Chandigarh	Peri-urban reservoir, Shivalik foothills	Common Pochard, Pallas's Fish Eagle
Sauj Jheel	Uttar Pradesh	Shallow Ganga-floodplain lake	Sarus Crane, Greater Spotted Eagle

Ramsar status is international recognition, not automatic legal protection under the Wildlife (Protection) Act. Indian wetlands are regulated by the 2017 Rules under the Environment (Protection) Act. Criterion 5 = 20,000 waterbirds; Criterion 6 = 1% of a population.

72 **As the sixth cycle of the All India Tiger Estimation progresses in 2026, consider the following statements about protected-area categories in India:**

1. Tiger Reserves are notified by the State Government on the recommendation of the National Tiger Conservation Authority under the Wildlife (Protection) Act, 1972.
2. Biosphere Reserves in India are declared under the Wildlife (Protection) Act, 1972.
3. In a Biosphere Reserve, the core zone is legally protected, while human settlements and sustainable economic activities are allowed in the transition zone.

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only ✓

(d) 1, 2 and 3

The costliest mistake in this exam isn't a wrong answer. It's a year you can't get back.

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Explanation

The correct answer is (c) 1 and 3 only. Statement 2 is wrong: Biosphere Reserves have no basis in the Wildlife (Protection) Act. They are designated under a MoEFCC scheme inspired by UNESCO's Man and the Biosphere (MAB) Programme, and some are also placed on UNESCO's World Network of Biosphere Reserves.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. Section 38V (inserted by the 2006 amendment that created the NTCA) lets the State Government, on NTCA's recommendation, notify an area as a Tiger Reserve. It must have a core or 'critical tiger habitat' to be kept inviolate, and a buffer of peripheral, co-existence areas. India has 58 Tiger Reserves; Madhav (Madhya Pradesh, 2025) is the 58th, and Madhya Pradesh has the most.

• Statement 2 - WRONG, for the reason in the verdict. The Wildlife (Protection) Act provides for sanctuaries, national parks, conservation reserves, community reserves and tiger reserves only.

• Statement 3 - CORRECT. Biosphere reserve zonation:

- Core: strictly protected, often an existing national park or sanctuary.
- Buffer: research, education and limited regulated use.
- Transition: settlements, agriculture and sustainable development - the 'area of cooperation'.

TOPIC REVISION - PROTECTED AREA CATEGORIES (Wildlife (Protection) Act, 1972)

• Sanctuary (Section 18): some rights may continue.

• National Park (Section 35): no grazing, and no rights except those allowed by the Chief Wildlife Warden.

• Conservation and Community Reserves (Sections 36A and 36C; 2002 amendment): on government or community land respectively, often acting as corridors or buffers.

• Tiger Reserves (Section 38V).

TIGER ESTIMATION

• The All India Tiger Estimation is conducted every four years by NTCA and the Wildlife Institute of India.

• The 2022 count was 3,682 (range 3,167-3,925) - about 75% of the world's wild tigers.

• It uses camera traps, the M-STrIPES app and occupancy modelling.

OTHER CONSERVATION AREAS

• Eco-sensitive Zones around protected areas are notified under the Environment (Protection) Act, 1986.

• Elephant Reserves are administrative, under Project Elephant (1992), and are not statutory.

Legal basis of conservation areas

Area	Legal basis
National Park / Sanctuary	Wildlife (Protection) Act, 1972, Sections 35 / 18
Conservation / Community Reserve	Wildlife (Protection) Act, Sections 36A / 36C (2002 amendment)
Tiger Reserve	Wildlife (Protection) Act, Section 38V (2006 amendment)
Eco-sensitive Zone	Environment (Protection) Act, 1986
Biosphere Reserve	Non-statutory: MoEFCC scheme / UNESCO MAB

> Tiger Reserves are statutory (Section 38V of the Wildlife (Protection) Act). Biosphere Reserves are not statutory (MoEFCC scheme, UNESCO MAB). Eco-sensitive Zones come under the Environment (Protection) Act.

73 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): Methane remains in the atmosphere for a much shorter period than carbon dioxide.

Reason (R): Over a 100-year horizon, a tonne of methane traps far more heat than a tonne of carbon dioxide.

(a) Both A and R are true and R is the correct explanation of A	**(b) Both A and R are true but R is NOT the correct explanation of A ✓**
(c) A is true but R is false	(d) A is false but R is true

Explanation

The correct answer is (B): both A and R are true, but R does not explain A. Methane's short lifetime comes from chemical removal (oxidation by hydroxyl radicals). Its high warming potency comes from its strong absorption of infrared radiation. Potency does not cause short lifetime.

ASSERTION - TRUE

• Methane's atmospheric lifetime is about a decade (about 9-12 years). It is destroyed mainly by hydroxyl (OH) radicals in the troposphere - the 'detergent of the atmosphere' - and partly by soils.

• CO2 is not destroyed chemically. It is gradually redistributed among atmosphere, ocean and biosphere, and a significant fraction stays for centuries to millennia, so no single lifetime applies.

REASON - TRUE

• Global Warming Potential (GWP) compares the heat trapped by a gas with that of the same mass of CO2 (GWP = 1). IPCC AR6: methane GWP-100 is about 27-30. Over 20 years, its GWP-20 is about 80 - higher still, because most of its effect occurs early.

• Methane molecules absorb infrared strongly in bands where the atmosphere is not yet saturated.

WHY R DOES NOT EXPLAIN A

Lifetime depends on how fast a gas is chemically removed; GWP depends on how strongly it absorbs radiation (and on lifetime). Both facts together explain why methane cuts give FAST climate benefits - but neither causes the other.

POLICY RELEVANCE - CURRENT AFFAIRS

• UNEP Emissions Gap Report 2026 ('The Point of Return', 21 October 2026): total greenhouse-gas emissions must fall about 18% by 2030 and 45% by 2035 (from 2025 levels). Methane must fall at least 25% by 2035 and 40% by 2040, to limit peak warming to 1.7-1.8 °C and return to 1.5 °C by 2100.

• Global Methane Pledge (COP26, 2021): a 30% cut from 2020 levels by 2030. India has NOT joined, citing the livelihood importance of agriculture and livestock (rice paddies and enteric fermentation).

SHORT-LIVED CLIMATE POLLUTANTS (SLCPs)

Methane, black carbon, tropospheric ozone and HFCs. Cutting them slows near-term warming. Examples: alternate wetting and drying in rice, landfill-gas capture, and plugging oil and gas leaks.

> Short lifetime and high GWP are independent properties. Both are true, so the answer is (B), not (A). GWP-20 is much larger than GWP-100 for methane.

74 On 21 October 2026, Stage I of the Graded Response Action Plan (GRAP) was invoked across Delhi-NCR. Which one of the following statements about GRAP and air-quality governance is correct?

(a) GRAP is enforced by the Central Pollution Control Board through its powers under the Air (Prevention and Control of Pollution) Act.

(b) GRAP stages are triggered only by PM2.5 levels, as the AQI used in India is calculated using particulate matter alone.

(c) GRAP Stage I comes into force when Delhi's AQI is in the 'Poor' range of 201-300, with measures tightening at each higher stage. ✓

(d) The Commission for Air Quality Management was created by an executive order of the Environment Ministry, not by an Act.

A test tells you where you stand. Daily practice is how you move.

Both are in the Testogram app.

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Explanation

The correct answer is (c). GRAP is a stage-wise emergency framework: Stage I (Poor, AQI 201-300), Stage II (Very Poor, 301-400), Stage III (Severe, 401-450) and Stage IV (Severe+, above 450). Each stage's actions add to the previous ones. Stage I was invoked on 21 October 2026, when the AQI jumped from 179 to 244.

OPTION-WISE ANALYSIS

• Option (a) - WRONG. GRAP is implemented by the Commission for Air Quality Management (CAQM) in NCR and Adjoining Areas, with the NCR States and agencies. It was originally notified in 2017 and enforced by the Supreme Court-appointed EPCA, before CAQM replaced EPCA. The CAQM issued a revised GRAP schedule on 29 September 2026.

• Option (b) - WRONG. India's National AQI (launched in 2014) considers up to eight pollutants: PM10, PM2.5, NO2, SO2, CO, O3, NH3 and lead. It is calculated if data for at least three pollutants are available, one of which must be PM2.5 or PM10. The overall AQI is the worst sub-index.

• Option (c) - CORRECT, for the reason in the verdict.

• Option (d) - WRONG. The CAQM is a statutory body under the Commission for Air Quality Management in National Capital Region and Adjoining Areas Act, 2021 (after an ordinance in 2020). Its directions override those of State pollution boards within its area.

WHAT EACH STAGE TYPICALLY DOES

• Stage I: dust control on construction sites and roads, a ban on open burning, PUC (pollution under control) enforcement, and restrictions on diesel-generator use.

• Stage II: higher parking fees and more public transport.

• Stage III: curbs on construction and demolition, and on BS-III petrol / BS-IV diesel cars.

• Stage IV: a ban on truck entry (except essentials), possible school closures, and work-from-home advisories.

WHY DELHI'S AIR WORSENS IN OCTOBER-NOVEMBER (the mechanism)

• Temperature inversion and low mixing height trap pollutants near the ground.

• Calm winds after the monsoon withdraws.

• Paddy-stubble burning in Punjab and Haryana; festival firecrackers; vehicles, dust and industry.

• The Indo-Gangetic Plain is land-locked by the Himalaya, which hinders dispersal.

RELATED PROGRAMMES

• National Clean Air Programme (2019): a target to cut PM10 by up to 40% by 2025-26 in non-attainment cities.

• Commission directions on crop residue: in-situ management (Happy Seeder, bio-decomposer) and ex-situ uses (biomass co-firing in thermal plants, pellets).

GRAP stages (Delhi-NCR)

Stage	AQI category	AQI range
I	Poor	201-300
II	Very Poor	301-400
III	Severe	401-450
IV	Severe+	Above 450

> GRAP is run by the CAQM (statutory, Act of 2021), not the CPCB. The AQI is multi-pollutant (eight parameters). Stage I = Poor (201-300).

75 **The WMO Greenhouse Gas Bulletin released on 27 October 2026 reported that the globally averaged concentration of carbon dioxide reached 426.8 ppm in 2025. With reference to greenhouse gases, consider the following statements:**

1. The Bulletin reports the atmospheric concentrations of greenhouse gases, not the annual emissions from human activities.
2. Relative to pre-industrial levels, the concentration of methane has increased proportionately more than that of carbon dioxide.
3. Methane also contributes to warming indirectly, as its oxidation produces tropospheric ozone and stratospheric water vapour.
4. Although water vapour is the most abundant greenhouse gas, its atmospheric concentration acts mainly as a feedback controlled by temperature.

How many of the statements given above are correct?

(a) Only one	(b) Only two
(c) Only three	**(d) All four ✓**

If you only find out on result day, you found out too late.

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Explanation

The correct answer is (d) All four. CO2 reached 426.8 ppm (about 153% of the 1750 level), while methane is at about 267% of its pre-industrial level, so all four statements reflect the WMO data and established climate science.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. The WMO Greenhouse Gas Bulletin (No. 22, released ahead of COP31) uses the Global Atmosphere Watch network to report how much gas has ACCUMULATED in the atmosphere. Emissions (flows) are tracked by other reports, such as UNEP's Emissions Gap Report. Concentrations keep rising even if emissions plateau, because CO2 accumulates (a 'bathtub' effect). The 2024-25 rise was 2.8 ppm, smaller than the record 3.6 ppm jump of 2023-24.

• Statement 2 - CORRECT. CO2 is at about 153% of pre-industrial levels; CH4 at about 267%; N2O at about 126% (339.1 ppb).

• Statement 3 - CORRECT. Methane is oxidised by hydroxyl (OH) radicals. In the troposphere this forms ozone (itself a greenhouse gas and a pollutant); in the stratosphere it adds water vapour. This is why methane cuts give a quick climate benefit.

• Statement 4 - CORRECT. Water vapour is the largest natural greenhouse contributor, but how much the air can hold depends on temperature (Clausius-Clapeyron: about 7% more per °C). It AMPLIFIES warming started by long-lived gases - a positive feedback - so it is not counted as a direct forcing agent.

TOPIC REVISION - LONG-LIVED GHGs

• CO2: sources are fossil fuels, cement and land-use change. It persists for centuries to millennia. It accounted for about 81% of the rise in radiative forcing from 1990 to 2025 (NOAA index).

• CH4: sources are wetlands, rice paddies, livestock, landfills and fossil-fuel leaks. Lifetime is about a decade.

• N2O: sources are nitrogen fertilisers, manure and industry. It is also currently the largest ozone-depleting emission.

• Others: HFCs and SF6 - potent industrial gases.

CARBON SINKS

Land and ocean absorb roughly half of emitted CO2. Heat, drought, fires and El Niño reduce land uptake. The WMO flagged that a strong El Niño developing in 2026 could weaken sinks further.

PROGRESS NOTE

The WMO also notes that the past 11 years (2015-2025) were the warmest on record.

WMO Greenhouse Gas Bulletin 2026 (data for 2025)

Gas	2025 level	Share of 1750 level
Carbon dioxide	426.8 ppm	~153%
Methane	record high	~267%
Nitrous oxide	339.1 ppb	~126%

> Concentration (stock) is not the same as emission (flow). Methane's proportional rise exceeds CO2's. Water vapour is a feedback, not a forcing agent.

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76 **In 2026, the Antarctic ozone hole grew to its largest extent in about a decade, peaking in mid-September. With reference to stratospheric ozone depletion, consider the following statements:**

1. The ozone hole is defined as the area over Antarctica where total column ozone falls below 220 Dobson Units.
2. Polar stratospheric clouds provide surfaces on which reservoir chlorine compounds are converted into forms that destroy ozone when sunlight returns.
3. The large size of the 2026 ozone hole shows that the Montreal Protocol has failed to reduce ozone-depleting substances in the atmosphere.

Which of the statements given above is/are correct?

(a) 1 and 2 only ✓	(b) 2 and 3 only
(c) 1 and 3 only	(d) 1, 2 and 3

Explanation

The correct answer is (a) 1 and 2 only. Statement 3 is wrong: NASA, NOAA and Copernicus attributed the 2026 size mainly to an unusually strong and cold polar vortex - year-to-year meteorological variability. Ozone-depleting substances keep declining, and recovery remains on track.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. A Dobson Unit (DU) measures the total amount of ozone in a vertical column of air. The global average is about 300 DU. Values below 220 DU (south of 60°S) define the 'hole'. In 2026 the South Pole minimum was about 105 DU (17 October), against the record low of 92 DU in 2006.

• Statement 2 - CORRECT. The mechanism, step by step:

1. In the polar winter, the vortex isolates very cold air (below about –78 °C), forming polar stratospheric clouds.
2. On their ice and nitric-acid particles, reservoir compounds (HCl, ClONO2) are converted to Cl2.
3. When spring sunlight returns (September), Cl2 splits into chlorine atoms, which destroy ozone in catalytic cycles. One chlorine atom can destroy thousands of ozone molecules.
4. The hole closes in November-December as the vortex breaks down.

• Statement 3 - WRONG, for the reason in the verdict. Scientists also note that the hole would have been 1-2 million square miles larger without the Protocol-driven fall in chlorine. Size alone does not show depth of depletion: other indicators such as ozone mass deficit stayed close to average.

2026 FACTS (NASA, NOAA, Copernicus Atmosphere Monitoring Service)

• Single-day maximum on 18 September 2026: about 27 million km² - the largest in about a decade.
• Seventh-largest in 48 years of seasonal averages.
• The largest on record was in 2000 (NASA) or 2006 (Copernicus single-day area, 29.6 million km²), depending on the dataset.

TOPIC REVISION - OZONE BASICS

• Stratospheric ozone ('good') absorbs UV-B; ground-level ozone ('bad') is a pollutant and greenhouse gas.
• Why Antarctica more than the Arctic: a stronger, colder, more stable vortex.
• Recovery projections (WMO/UNEP Scientific Assessment 2022): Antarctic by about 2066, Arctic about 2045, the rest of the world about 2040.
• 16 September is the International Day for the Preservation of the Ozone Layer (the Montreal Protocol was signed in 1987).

Two kinds of ozone

Feature	Stratospheric ozone	Tropospheric ozone
Location	About 15-35 km altitude	Near the ground
Role	Shields life from UV-B	Pollutant and greenhouse gas
Governed by	Vienna Convention / Montreal Protocol	Air-quality laws (e.g. Air Act)

Ozone-hole AREA varies with weather (vortex strength). A large hole in one year does not mean the treaty failed. Threshold = 220 DU. Polar stratospheric clouds plus sunlight are essential.

77 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): In September 2026, the Central Government prohibited the registration of the herbicide paraquat dichloride and cancelled all existing registration certificates under the Insecticides Act, 1968.

Reason (R): The Insecticides Act, 1968 does not empower State Governments to restrict the sale or use of any insecticide, even temporarily.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false ✓

(d) A is false but R is true

Explanation

The correct answer is (C): A is true, but R is false. States DO have a limited power to prohibit the sale, distribution or use of an insecticide temporarily (60 days, extendable by 30 days). Telangana and Andhra Pradesh did this for paraquat before the Centre's nationwide action. Only the permanent, nationwide ban lies with the Centre.

ASSERTION - TRUE

• Sequence of events:

- An Expert Committee was set up on 14 January 2026; it reported on 12 June 2026.
- The Registration Committee recommended a complete prohibition.
- A draft order under Section 27(2) of the Insecticides Act was issued (S.O. 3800(E), 10 July 2026), inviting objections.
- The final order (S.O. 5234(E), 22 September 2026) prohibited registration and cancelled existing certificates.

• Reasons cited: high acute toxicity, no specific antidote, many fatal poisonings, and bans or severe restrictions in more than 70 countries.

REASON - FALSE

• The Act gives States a short-term, emergency power to stop sale or use, as Andhra Pradesh and Telangana did. A permanent nationwide prohibition is a Central power.

• Since R is false, the answer is (C).

TOPIC REVISION - PESTICIDE REGULATION IN INDIA

• Insecticides Act, 1968: requires registration before import, manufacture or sale.

• Central Insecticides Board (advisory) and the Registration Committee: together, CIB&RC under the Ministry of Agriculture.

• Section 27: prohibition of sale or use in the interest of public safety.

• Food residue limits (maximum residue levels) are set by FSSAI under the Food Safety and Standards Act, 2006.

ENVIRONMENTAL LINKS

• Pesticide run-off pollutes groundwater and surface water, harms soil microbes and pollinators, and causes biomagnification for persistent compounds. Paraquat binds tightly to soil clay; its main concern is acute human toxicity.

• KMGBF Target 7 calls for halving the overall risk from pesticides by 2030.

INTERNATIONAL CHEMICAL CONVENTIONS - DISTINGUISH

• Rotterdam (1998): prior informed consent for trade in hazardous chemicals and pesticides.

• Stockholm (2001): eliminate or restrict persistent organic pollutants.

• Basel (1989): transboundary movement of hazardous wastes.

• Minamata (2013): mercury.

> States have a temporary power (60 + 30 days) under the Insecticides Act; the Centre has the permanent, nationwide power. Rotterdam = prior informed consent in trade; Stockholm = POPs.

Stamina is a skill. Marathon is where you build it before the exam asks for it.

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78 **With reference to India's Carbon Credit Trading Scheme (CCTS), which is entering its first compliance cycle, which one of the following statements is correct?**

(a) It is notified under the Environment (Protection) Act, 1986, and the Central Pollution Control Board acts as its administrator.

(b) It sets an absolute cap on total national emissions and auctions tradable emission allowances to industries within that cap.

(c) It allows carbon credit certificates to be traded only in private over-the-counter deals, without a regulator overseeing trades.

(d) It sets emission-intensity targets for obligated entities under the Energy Conservation Act, with the BEE as administrator. ✓

Explanation

The correct answer is (d). The CCTS (notified in June 2023 by the Ministry of Power under the Energy Conservation (Amendment) Act, 2022) is an intensity-based compliance market. Obligated entities get greenhouse-gas emission-intensity targets (tCO2e per tonne of product). The Bureau of Energy Efficiency is the administrator, and the Grid Controller of India is the registry.

OPTION-WISE ANALYSIS

• Option (a) - WRONG. The legal basis is the Energy Conservation Act, 2001, as amended in 2022, not the Environment (Protection) Act. The administrator is the BEE, not the CPCB. MoEFCC notifies the sector-wise intensity targets.

• Option (b) - WRONG. India chose an INTENSITY approach rather than an absolute 'cap-and-trade' like the EU ETS. Total emissions can grow with output, so long as emissions per unit of product fall. This mirrors India's NDC, which is also intensity-based (45% by 2030 and 47% by 2035, below 2005 levels).

• Option (c) - WRONG. Trading happens on power exchanges under regulations notified by the Central Electricity Regulatory Commission (CERC) in February 2026. These regulations split the market into a compliance segment for obligated entities and an offset segment for non-obligated entities.

• Option (d) - CORRECT, for the reason in the verdict.

HOW THE COMPLIANCE MECHANISM WORKS (step by step)

1. MoEFCC notifies intensity targets for energy-intensive sectors: aluminium, cement, chlor-alkali, pulp and paper, refineries, petrochemicals, textiles, fertilisers, iron and steel. About 490 entities had targets by mid-2026.
2. An entity that beats its target earns Carbon Credit Certificates (1 CCC = 1 tCO2e).
3. An entity that misses must buy CCCs, or pay an environmental compensation.
4. Price discovery on exchanges rewards cheaper abatement.

OFFSET MECHANISM

Voluntary projects (renewables, afforestation, methane capture) by non-obligated entities can earn credits under approved methodologies.

INTERNATIONAL LINKS

• Article 6 of the Paris Agreement: 6.2 cooperative approaches (bilateral, e.g. India-Japan Joint Crediting Mechanism); 6.4 the UN-supervised Paris Agreement Crediting Mechanism, which replaces the Kyoto Protocol's Clean Development Mechanism.

• The CCTS succeeds the Perform, Achieve and Trade (PAT) scheme for energy efficiency, which traded Energy Saving Certificates.

• The EU's Carbon Border Adjustment Mechanism (CBAM) makes a credible domestic carbon price strategically useful for Indian exporters of steel and aluminium.

CCTS institutional roles

Institution	Role
Ministry of Power	Notified the scheme (2023)
MoEFCC	Notifies emission-intensity targets
Bureau of Energy Efficiency	Administrator
Grid Controller of India	Registry
CERC	Regulates trading on power exchanges

CCTS = Energy Conservation Act + BEE + intensity targets + CERC-regulated exchange trading. It is not an absolute cap, and not under the Environment (Protection) Act or the CPCB.

79 **The 17th Conference of the Parties to the Convention on Biological Diversity (COP17) concluded in Yerevan, Armenia, on 31 October 2026, adopting the 'Yerevan Pathway'. With reference to the CBD and its instruments, consider the following statements:**

1. COP17 carried out the first global review of collective progress in implementing the Kunming-Montreal Global Biodiversity Framework.
2. The Kunming-Montreal Global Biodiversity Framework contains 23 action-oriented global targets for 2030.
3. The targets of the Kunming-Montreal Global Biodiversity Framework are legally binding on each Party under the CBD.
4. The Cartagena Protocol to the CBD deals with access to genetic resources and the fair sharing of benefits arising from their use.

How many of the statements given above are correct?

(a) Only one	**(b) Only two ✓**
(c) Only three	(d) All four

Explanation

The correct answer is (b) Only two. Statements 1 and 2 are correct. Statement 3 is wrong: the KMGBF is a COP decision - a political commitment implemented through national plans (NBSAPs), not a binding treaty. Statement 4 is wrong: the Cartagena Protocol deals with biosafety; access and benefit-sharing is the subject of the Nagoya Protocol.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. COP17 (Yerevan, 19-31 October 2026; theme 'Taking Action for Nature') held the first global review. The CBD found the world off-track on the 23 targets. The Yerevan Pathway asks Parties to revise their plans, subject to available funding, with a focus on marine, coastal and inland-water gaps. Finance was the main sticking point; COP16's Cali Fund (on digital sequence information) is still not operational. COP17 also agreed rules for the new permanent subsidiary body on Article 8(j) (Indigenous Peoples and local communities).
• Statement 2 - CORRECT. The KMGBF (COP15, December 2022, Montreal, under China's presidency) has 4 goals for 2050 and 23 targets for 2030. Examples:
- Target 2: restore 30% of degraded ecosystems.
- Target 3: '30x30' - conserve 30% of land and inland waters and 30% of coastal and marine areas.
- Target 7: halve excess nutrient loss and the overall risk from pesticides.
- Target 18: cut harmful subsidies by US$500 billion a year.
• Statement 3 - WRONG, for the reason in the verdict.
• Statement 4 - WRONG, for the reason in the verdict.

TOPIC REVISION - THE CBD FAMILY

• CBD: signed at the Rio Earth Summit (1992), in force 1993. Three objectives: conservation, sustainable use, and fair and equitable sharing of benefits. Secretariat in Montreal. The USA is not a Party.
• Cartagena Protocol (2000, in force 2003): safe transfer of living modified organisms (LMOs), based on advance informed agreement. The Nagoya-Kuala Lumpur Supplementary Protocol covers liability and redress.
• Nagoya Protocol (2010, in force 2014): access and benefit-sharing (ABS) and prior informed consent.

INDIA'S IMPLEMENTATION

• The Biological Diversity Act, 2002 (amended 2023) sets up a three-tier structure: National Biodiversity Authority (Chennai) → State Biodiversity Boards → Biodiversity Management Committees, which keep People's Biodiversity Registers.
• India's updated NBSAP aligns with the 23 KMGBF targets.

CBD and its protocols

Instrument	Adopted	Subject
CBD	1992 (Rio)	Conservation, sustainable use, benefit sharing
Cartagena Protocol	2000	Biosafety - living modified organisms
Nagoya Protocol	2010	Access and benefit-sharing
Kunming-Montreal GBF	2022 (COP15)	4 goals (2050), 23 targets (2030)

Cartagena = biosafety (LMOs); Nagoya = access and benefit-sharing. The KMGBF is a COP decision, not a binding protocol. COP17 = first global review (Yerevan, 2026).

A year is too long to wait for feedback.
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80 **In November 2026, the 38th Meeting of the Parties to the Montreal Protocol was held in Kigali, Rwanda, marking the tenth anniversary of the Kigali Amendment. Consider the following statements:**

1. The Kigali Amendment provides for the phase-down of hydrofluorocarbons, which do not deplete the ozone layer but are potent greenhouse gases.
2. Under the Kigali Amendment, India's schedule uses 2024-2026 as baseline years and requires a freeze in HFC consumption in 2028.
3. The Multilateral Fund under the Montreal Protocol meets the agreed incremental costs of developing-country Parties in complying with their control measures.

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3 ✓

A wrong answer you understand is worth more than a right one you guessed.

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Explanation

The correct answer is (d) 1, 2 and 3. All three are accurate. At MOP38 (Kigali, 2-7 November 2026), Parties agreed a US$695 million replenishment of the Multilateral Fund for 2027-2029.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. HFCs were brought in to replace CFCs and HCFCs because they contain no chlorine or bromine, so their ozone-depletion potential is zero. But many have global warming potentials hundreds to thousands of times that of CO2. The Kigali Amendment (October 2016, in force 1 January 2019) brought HFCs under the Montreal Protocol - an ozone treaty doing climate work. Full implementation is projected to avoid up to about 0.4 °C of warming by 2100.

• Statement 2 - CORRECT. Three groups of countries:

- Developed countries: began phase-down in 2019.
- Most developing countries, including China: freeze in 2024.
- India, Pakistan, Iran, Iraq and the Gulf States: baseline 2024-2026, freeze in 2028, then cuts of 10% (2032), 20% (2037), 30% (2042) and 85% (2047).

India ratified the Amendment in 2021.

• Statement 3 - CORRECT. The Multilateral Fund was set up by the London Amendment (1990) and became operational in 1991. It is financed by developed countries and covers incremental costs for Article 5 (developing) Parties. It is implemented through UNEP, UNDP, UNIDO and the World Bank. It was the first financial mechanism of its kind.

TOPIC REVISION - THE OZONE REGIME

• Vienna Convention (1985) - a framework. Montreal Protocol (1987) - control measures.
• It is the first UN treaty ratified by every UN member state - universal ratification.
• Amendments: London (1990), Copenhagen (1992), Montreal (1997), Beijing (1999), Kigali (2016).
• Phase-out of controlled substances: CFCs completed (developing countries by 2010); HCFCs being phased out (developing countries by 2030).

INDIA'S MEASURES

• India Cooling Action Plan (2019): cut cooling demand 20-25% and refrigerant demand 25-30% by 2037-38.
• Ozone Depleting Substances (Regulation and Control) Rules under the Environment (Protection) Act.
• HCFC Phase-out Management Plan.

Kigali Amendment: HFC phase-down groups

Group	Members	Freeze	Final cut
Non-Article 5 (developed)	USA, EU, Japan etc.	Phase-down from 2019	85% by 2036
Article 5 Group 1	China, Brazil, most developing	2024	80% by 2045
Article 5 Group 2	India, Pakistan, Iran, Iraq, Gulf States	2028	85% by 2047

HFCs: ozone-depletion potential is zero but GWP is high - that is why Kigali is a climate win inside an ozone treaty. India's group: baseline 2024-26, freeze 2028, 85% cut by 2047.

81 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): In ecosystems exposed to DDT, fish-eating birds at the top of aquatic food chains accumulated much higher concentrations of the pesticide than the water or the plankton.

Reason (R): DDT is persistent and fat-soluble, so organisms store it in their fatty tissues rather than excreting it, and its concentration increases at each successive trophic level.

(a) Both A and R are true and R is the correct explanation of A ✓	(b) Both A and R are true but R is NOT the correct explanation of A
(c) A is true but R is false	(d) A is false but R is true

Explanation

The correct answer is (A): both A and R are true, and R correctly explains A. Persistence plus fat-solubility means DDT is retained in the body. Each predator eats many contaminated prey over its lifetime, so the concentration multiplies up the food chain - biomagnification.

ASSERTION - TRUE

• The classic case is DDT in Long Island Sound (USA). Concentrations rose from about 0.000003 ppm in water to about 25 ppm in fish-eating birds - a magnification of millions of times.

• High DDT (and its breakdown product DDE) in birds such as ospreys, pelicans and eagles caused eggshell thinning by interfering with calcium metabolism. Eggs broke during incubation and populations crashed, as documented after Rachel Carson's 'Silent Spring' (1962).

REASON - TRUE, AND IT EXPLAINS A (the mechanism)

1. Persistent: not easily broken down by microbes or sunlight.
2. Lipophilic: dissolves in fat, not water, so it is not excreted in urine.
3. Bioaccumulation: within one organism, intake exceeds removal over time.
4. Biomagnification: across trophic levels, concentration increases because each consumer eats large quantities of the level below.

DISTINGUISH THE TERMS

• Bioaccumulation = build-up within ONE organism over its lifetime.

• Biomagnification = increase from one trophic level to the NEXT.

• Bioconcentration = uptake directly from water, for example across fish gills.

OTHER BIOMAGNIFYING POLLUTANTS

• Methylmercury (Minamata disease, Japan; the Minamata Convention, 2013).

• PCBs, dioxins and other persistent organic pollutants (POPs).

GOVERNANCE

• The Stockholm Convention (2001) on POPs lists DDT in Annex B (restricted). Use is allowed only for disease vector control under WHO guidelines.

• India is a major producer of DDT for vector control (malaria) and has banned its agricultural use.

> Biomagnification needs a substance that is BOTH persistent AND fat-soluble. Water-soluble or easily degraded pollutants do not biomagnify.

82 Which one of the following statements about ecological succession is correct?

(a) Primary succession is usually faster than secondary succession, because there is little competition from other species on bare substrates.

(b) Lichens are typical pioneers on bare rock, as the acids they secrete weather the rock and start the process of soil formation. ✓

(c) In hydrarch succession, the plant community progresses from dry (xeric) conditions towards moist (mesic) conditions over time.

(d) The climax community has the highest net community productivity of all the stages of a succession, owing to its maximum biomass.

The same mistake, made twice, is a habit. This is where you catch it the first time.

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Explanation

The correct answer is (b). On bare rock (xerarch succession), crustose lichens are the pioneers. Their secretions weather the rock and trap dust and organic matter, building the first thin soil that mosses and later herbs can colonise.

OPTION-WISE ANALYSIS

• Option (a) - WRONG. Primary succession starts where no soil exists (bare rock, fresh lava, new sand dunes). Soil must be built from scratch, so it is very slow - centuries to millennia. Secondary succession (after a fire, flood or abandoned farmland) is FASTER because soil, seed banks and roots survive.

• Option (b) - CORRECT, for the reason in the verdict.

• Option (c) - WRONG. It is reversed. Hydrarch succession starts in water (hydric: phytoplankton → submerged plants → floating plants → reed-swamp → sedge meadow → woodland → forest) and moves towards MESIC conditions. Xerarch succession starts in dry areas and also moves towards mesic. Both converge on the mesic climax.

• Option (d) - WRONG. In a mature climax community, gross production is roughly balanced by community respiration, so net community production (net accumulation) approaches zero. Net productivity is highest in the developing (seral) stages.

TOPIC REVISION - KEY TERMS

• Sere: the whole sequence of communities. Seral stages: the intermediate communities.

• Pioneer species: the first colonisers - hardy, fast-reproducing, with simple needs.

• Climax community: relatively stable, in equilibrium with the climate and soil of the area (monoclimax vs polyclimax theories).

TRENDS DURING SUCCESSION

Species diversity, biomass, the complexity of food webs, soil depth and nutrient retention generally INCREASE. Net production DECREASES at climax. Niche specialisation increases. Nutrient cycles become more closed.

APPLICATIONS

• Ecological restoration (for example of mine-spoil sites or degraded wetlands) works by speeding up natural succession: using pioneer plants, nitrogen-fixers and mulching.

• Disturbance ecology: the intermediate disturbance hypothesis predicts maximum diversity at moderate levels of disturbance.

Primary vs secondary succession

Feature	Primary	Secondary
Starting point	No soil (bare rock, lava)	Soil present (after fire, fallow land)
Pioneers	Lichens, mosses	Annual herbs, grasses
Speed	Very slow	Relatively fast

Hydrarch: wet → mesic. Xerarch: dry → mesic. Secondary succession is faster than primary. Net productivity peaks in seral stages, not at climax.

83 **WWF's Living Planet Report 2026, released in October 2026, reported an average decline of 73 per cent in monitored wildlife populations between 1970 and 2022. With reference to the Living Planet Index (LPI), consider the following statements:**

1. The LPI measures the average change in the relative abundance of monitored populations, not the number of species that have gone extinct.
2. Among the broad habitat types, freshwater populations show the steepest average decline.
3. The comparatively small decline recorded for Europe and Central Asia shows that biodiversity there has been the least affected by human activity.
4. The LPI tracks populations of vertebrates, invertebrates and vascular plants.

How many of the statements given above are correct?

(a) Only one	**(b) Only two ✓**
(c) Only three	(d) All four

Reading a solution shows you the answer. Sitting the test shows you yourself.

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Explanation

The correct answer is (b) Only two. Statements 1 and 2 are correct. Statement 3 is wrong because Europe had already lost much of its wildlife before the 1970 baseline. Statement 4 is wrong because the LPI covers vertebrates only.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. The LPI is an index of RELATIVE ABUNDANCE. It averages the rate of change across monitored populations (35,803 population trends of 5,790 vertebrate species in the 2026 edition). A 73% fall does NOT mean 73% of animals or species have disappeared. It is the average proportional change, and it is sensitive to steep declines in already-small populations.

• Statement 2 - CORRECT. 2026 report: freshwater –85%, terrestrial –69%, marine –59%. Freshwater systems face dams, water abstraction, pollution, invasive species and overfishing at the same time.

• Statement 3 - WRONG. Europe and Central Asia (–23%) and North America (–28%) show smaller declines mainly because large-scale losses there happened BEFORE 1970 - the 'shifting baseline' problem. A low number does not mean pristine nature. Latin America and the Caribbean show the steepest fall (–95%), then Africa (–80%) and Asia-Pacific (–49%).

• Statement 4 - WRONG. The LPI covers only vertebrates: mammals, birds, reptiles, amphibians and fish.

TOPIC REVISION - DRIVERS OF BIODIVERSITY LOSS

• Order of importance in the report: habitat loss and degradation (mainly from food systems) → overexploitation → climate change → pollution → invasive species and disease. The IPBES Global Assessment (2019) gives a similar ranking.

OTHER BIODIVERSITY INDICATORS - DON'T CONFUSE

• Red List Index (IUCN): trend in extinction RISK across species groups.

• Biodiversity Intactness Index: how much of a region's original biodiversity remains.

• The LPI is also an indicator under the Kunming-Montreal Global Biodiversity Framework (KMGBF).

PUBLICATION FACTS

• The Living Planet Report is published every two years by WWF; the LPI is produced by the Zoological Society of London (ZSL).

• The 2026 edition, 'The Science of Hope', was released just before CBD COP17 in Yerevan. It notes that about half of monitored populations are stable or increasing.

Living Planet Index 2026: average decline, 1970-2022

Category	Average decline
Global	73%
Freshwater	85%
Terrestrial	69%
Marine	59%
Latin America & Caribbean	95%
Europe & Central Asia	23%

LPI = relative abundance of vertebrate populations, not an extinction count. Low regional declines can reflect a degraded 1970 baseline, not healthy ecosystems.

Whoever sent you this knows their strengths, understands their gaps, and knows where they're headed. They're preparing with clarity and confidence—not fear. They know their edge. You can too.

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84 With reference to ecological pyramids, consider the following statements:

1. The pyramid of energy is always upright.
2. In an open-ocean ecosystem, the pyramid of biomass can be inverted.
3. In an ecosystem where a single large tree supports many herbivorous insects, the pyramid of numbers is upright.

Which of the statements given above is/are correct?

(a) 1 and 2 only ✓	(b) 2 and 3 only
(c) 1 and 3 only	(d) 1, 2 and 3

Explanation

The correct answer is (a) 1 and 2 only. Statement 3 is wrong: one tree (a single producer) supporting many insects gives a narrow base and a broad middle, so the pyramid of numbers is inverted or spindle-shaped, not upright.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. Energy flow is unidirectional, and at every transfer much energy is lost as heat through respiration (second law of thermodynamics). On average only about 10% passes to the next trophic level (Lindeman's ten per cent law). Higher levels can never have more energy than lower ones, so the energy pyramid can never be inverted.

• Statement 2 - CORRECT. In the sea, the standing crop (biomass at one moment) of phytoplankton is small, but they reproduce very fast. The larger, longer-lived zooplankton and fish can therefore have more standing biomass than the producers. Biomass is a 'snapshot', while productivity is a rate - that is why the biomass pyramid can be inverted.

• Statement 3 - WRONG. Tree → insects → birds: 1 producer, thousands of insects, fewer birds. That makes a spindle shape. Add parasites on the birds and it becomes fully inverted. Grassland is the classic upright pyramid of numbers.

TOPIC REVISION - THE THREE PYRAMIDS

• Numbers: upright (grassland); inverted (tree ecosystem, parasitic food chain).

• Biomass: upright (forests, grassland); inverted (open ocean).

• Energy: always upright.

KEY CONCEPTS

• GPP (gross primary productivity) – plant respiration = NPP (net primary productivity), the energy available to consumers.

• Limitations of pyramids: they ignore omnivory (one species at several levels), they leave out decomposers, and they assume simple food chains rather than webs.

• Detritus food chain: in many terrestrial ecosystems more energy flows through decomposers than through grazing chains.

• The same trophic logic explains biomagnification (concentrations of persistent toxins rise up the chain) and why fewer top carnivores can be supported - the reason large predators need large habitats.

Shapes of ecological pyramids

Pyramid	Upright example	Inverted example
Numbers	Grassland	Single tree / parasitic chain
Biomass	Forest, grassland	Open ocean
Energy	Always upright	Never

Only the energy pyramid is always upright. Biomass can invert in the sea (fast-turnover phytoplankton); numbers invert in tree and parasite chains.

85 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): A Ramsar Site placed on the Montreux Record is removed from the List of Wetlands of International Importance.

Reason (R): The Montreux Record is a register of Ramsar Sites where changes in ecological character have occurred, are occurring or are likely to occur because of human interference.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true ✓

Explanation

The correct answer is (D): A is false, but R is true. A site on the Montreux Record stays a Ramsar Site. The Record flags it for priority conservation attention and possible technical help - it is a watch list, not a removal mechanism.

ASSERTION - FALSE
• A site on the Montreux Record is still listed under the Ramsar Convention.
• The site can be removed from the Record once the threats are addressed and its ecological character is restored.
• Example: Chilika Lake (Odisha) was placed on the Record in 1993 because of siltation and reduced salinity from a choked sea mouth. It was removed in 2002 after a new mouth was opened (2000), which restored tidal exchange, fisheries and Irrawaddy dolphin numbers - a well-known restoration success.

REASON - TRUE
• The Record was established by a recommendation at the 1990 Conference of the Parties in Montreux, Switzerland. Inclusion is voluntary, at the request of the Contracting Party.
• Since A is false, the answer is (D) regardless of any link between A and R.

INDIAN SITES CURRENTLY ON THE MONTREUX RECORD
• Keoladeo National Park, Rajasthan (since 1990): water shortage and an unbalanced grazing regime; invasion by Paspalum grass.
• Loktak Lake, Manipur (since 1993): deforestation in the catchment, infestation by phumdis (floating biomass), and the Ithai barrage. Keibul Lamjao National Park, the only floating national park, home of the Sangai deer, lies on Loktak.

RELATED RAMSAR MECHANISMS
• Ramsar Advisory Missions: technical help for threatened sites.
• Article 3.2: Parties must report changes in the ecological character of their sites.
• Wetland City Accreditation: India's Indore and Udaipur were accredited in 2025.

WHY WETLANDS MATTER
Flood buffering, groundwater recharge, carbon storage (peatlands and mangroves), fisheries, and water purification ('kidneys of the landscape').

> Montreux Record = 'sites in danger' watch list; sites remain Ramsar-listed. Keoladeo and Loktak are on it; Chilika was removed in 2002.

The exam will ask what you avoided. Find out what that is while it still costs nothing.

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86 With reference to mRNA vaccines, which one of the following statements is correct?

(a) The mRNA, packaged in lipid nanoparticles, is translated in the cytoplasm and does not alter the host cell's DNA. ✓

(b) They contain a weakened form of the live virus, which multiplies slowly in the body to trigger long-lasting immunity.

(c) The mRNA is copied into DNA by the cell and integrated into chromosomes, so the antigen is made permanently.

(d) Their mRNA is very chemically stable, so the vaccines can be stored at room temperature for long periods.

Explanation

The correct answer is (a). The vaccine delivers mRNA encoding an antigen (e.g. the SARS-CoV-2 spike protein) inside lipid nanoparticles. Host ribosomes in the cytoplasm translate it into protein, which the immune system learns to recognise. The mRNA never enters the nucleus and is broken down within days.

OPTION-WISE ANALYSIS

• Option (a) - CORRECT, for the reason in the verdict.

• Option (b) - WRONG. That describes LIVE-ATTENUATED vaccines (e.g. measles, oral polio, BCG). mRNA vaccines contain no virus at all, so they cannot cause the infection.

• Option (c) - WRONG. Human cells do not ordinarily reverse-transcribe vaccine mRNA into DNA, and there is no integration into chromosomes. The antigen is made only briefly. (Retroviruses such as HIV carry their own reverse transcriptase and integrase - a different situation.)

• Option (d) - WRONG. mRNA is fragile: RNA-degrading enzymes are everywhere. Early COVID-19 mRNA vaccines needed ultra-cold chains (–70 °C for Pfizer-BioNTech). Improved formulations, such as India's Gennova vaccine, work at 2-8 °C, but 'long storage at room temperature' is not a general feature.

HOW mRNA VACCINES WORK (step by step)

1. Design the mRNA sequence for the target antigen.
2. Swap uridine for modified nucleosides (pseudouridine) to avoid excess inflammation and boost protein output - the Nobel Medicine 2023 work of Karikó and Weissman.
3. Wrap the mRNA in lipid nanoparticles, which protect it and help it enter cells.
4. Cells make the antigen and display it.
5. B cells make antibodies, and helper and killer T cells respond. Memory cells form.

ADVANTAGES

Fast to design and update (only the sequence changes), no cell culture of live virus, strong immune responses. Being explored for influenza, RSV, cancer vaccines (personalised neoantigens) and more.

OTHER VACCINE PLATFORMS - COMPARE

• Inactivated (killed) virus: Covaxin.

• Viral vector: Covishield (adenovirus carrying the spike gene).

• Protein subunit: Corbevax, hepatitis B.

• DNA vaccine: ZyCoV-D (India; the world's first DNA vaccine approved for COVID-19, delivered needle-free).

• Self-amplifying mRNA: carries replicase genes, so lower doses are needed.

Vaccine platforms

Platform	What is delivered	Indian example
Inactivated	Killed whole virus	Covaxin
Viral vector	Harmless virus carrying an antigen gene	Covishield
Protein subunit	Purified antigen protein	Corbevax
DNA	Plasmid DNA encoding the antigen	ZyCoV-D
mRNA	mRNA in lipid nanoparticles	Gennova (GEMCOVAC)

mRNA vaccines stay in the cytoplasm - no nuclear entry, no DNA change. Live-attenuated vaccines contain weakened pathogens. Cold-chain needs depend on the formulation.

87 **The Nobel Prize in Physiology or Medicine 2026 was awarded to Karl Deisseroth, Peter Hegemann and Georg Nagel for discoveries concerning light-gated ion channels and optogenetics. With reference to optogenetics, consider the following statements:**

1. Channelrhodopsin, the key light-sensitive protein, was discovered in a single-celled green alga.
2. When exposed to blue light, channelrhodopsin opens a channel that lets positively charged ions into the cell, which can trigger a nerve impulse.
3. To control specific neurons with light, the gene for the light-sensitive protein must first be delivered into those cells, commonly using engineered viral vectors.
4. Optogenetics is now a widely approved routine treatment for neurological disorders such as Parkinson's disease.

How many of the statements given above are correct?

(a) Only one

(b) Only two

(c) Only three ✓

(d) All four

Every explanation here was written to teach, not to justify an answer key.

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Explanation

The correct answer is (c) Only three. Statements 1, 2 and 3 are correct. Statement 4 is wrong: optogenetics is mainly a powerful RESEARCH tool. Therapeutic uses, such as restoring partial vision in retinitis pigmentosa, are at the clinical-trial stage, not routine approved treatments.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. Hegemann studied how the alga Chlamydomonas reinhardtii swims towards light. With Nagel, he identified channelrhodopsin, a protein in its cell membrane that acts as both light sensor and ion channel.

• Statement 2 - CORRECT. The mechanism, step by step:

1. Blue light (about 470 nm) is absorbed by retinal (a vitamin-A derivative) bound to the protein.
2. The channel opens and cations (Na+, H+, Ca2+) flow in.
3. The membrane depolarises and, past a threshold, an action potential fires.

Other proteins (e.g. halorhodopsin, a chloride pump activated by yellow light) do the opposite and SILENCE neurons, so scientists can switch cells on or off.

• Statement 3 - CORRECT. Deisseroth inserted the channelrhodopsin gene into rat neurons and later into the brains of living mice. Delivery commonly uses adeno-associated or lentiviral vectors. Cell-type-specific promoters restrict expression to chosen neurons. Light is then delivered through implanted optical fibres.

• Statement 4 - WRONG, for the reason in the verdict. Challenges for human use include safe gene delivery, immune responses, and getting light deep into tissue.

WHY IT MATTERS

• Precision: millisecond timing and single-cell-type selectivity, which drugs and electrodes cannot match.

• It reveals which circuits cause behaviours - fear, reward, memory, sleep, addiction - and has advanced research on depression, epilepsy and Parkinson's.

RELATED CONCEPTS

• Chemogenetics (DREADDs): uses designer receptors activated by drugs rather than light.

• Deep brain stimulation: an approved electrical therapy for Parkinson's, less cell-specific.

• Ion channels: membrane proteins gating ion flow. Nobel prizes for them include 1991 (patch clamp) and 2003 (MacKinnon, potassium channel structure).

Optogenetic tools

Protein	Source	Light	Effect on neuron
Channelrhodopsin-2	Green alga (Chlamydomonas)	Blue	Activates (cation influx)
Halorhodopsin	Archaea (Natronomonas)	Yellow	Silences (chloride pump)
Archaerhodopsin	Archaea	Yellow-green	Silences (proton pump)

Optogenetics = research tool, with therapy only in trials. Channelrhodopsin is algal, activated by blue light, and lets cations in (excitation). Halorhodopsin is a chloride pump (inhibition).

Well prepared is not the same as competitive. Know which one you are.

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88 **At SEMICON India 2026 (17-19 September 2026), the government said India's semiconductor programme was moving from capability-building to commercial production under India Semiconductor Mission 2.0. With reference to semiconductor technology, consider the following statements:**

1. ATMP/OSAT units assemble, test and package chips but do not fabricate the silicon wafers on which the circuits are made.
2. A smaller 'process node' (for example, 3 nm compared with 28 nm) generally allows more transistors per unit area, improving performance and energy efficiency.
3. Silicon is preferred over gallium nitride for high-power, high-frequency uses such as fast chargers and 5G base stations.

Which of the statements given above is/are correct?

(a) 1 and 2 only ✓

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Explanation

The correct answer is (a) 1 and 2 only. Statement 3 is wrong: gallium nitride (GaN) and silicon carbide (SiC) are 'wide-bandgap' semiconductors. They outperform silicon at high voltages, temperatures and frequencies, which is why they are used in fast chargers, EV power electronics and 5G radio equipment.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. The chip value chain:

1. Design (India is strong here).
2. Fabrication in a 'fab': lithography, deposition, etching and doping build billions of transistors on silicon wafers.
3. ATMP/OSAT: assembly, testing, marking and packaging. Wafers are cut into dies, bonded, encapsulated and tested.

India's first commercial units (e.g. Micron in Sanand, Kaynes, CG Semi) are ATMP/OSAT. The Tata-PSMC fab at Dholera, Gujarat, is targeting its first chips.

• Statement 2 - CORRECT. The 'node' was once a physical gate length. Today it is largely a marketing label for a technology generation, but smaller nodes still mean denser, faster, less power-hungry chips. Leading-edge nodes (3 nm and below) need extreme ultraviolet (EUV) lithography machines. Mature nodes (28 nm and above) serve automobiles, appliances and power devices - a large market India first targets.

• Statement 3 - WRONG, for the reason in the verdict.

TOPIC REVISION - INDIA SEMICONDUCTOR MISSION

• ISM 1.0 (2021, ₹76,000 crore): fiscal support for fabs, display fabs, ATMP/OSAT and design (the Design-Linked Incentive scheme). 12 projects were approved, and several units have begun commercial production.

• ISM 2.0: expands to the wider ecosystem - equipment, materials, advanced packaging, R&D and talent.

• Strategic reasons: supply-chain resilience (chip shortages of 2020-22), electronics manufacturing, defence security, and reducing imports.

KEY TERMS

• Wafer: a thin slice of ultra-pure silicon (typically 300 mm).

• Fabless company: designs but does not manufacture (e.g. Qualcomm). Foundry: manufactures for others (e.g. TSMC).

• Bandgap: the energy needed to free an electron to conduct. A wider gap allows higher voltage and heat tolerance.

• Advanced packaging (chiplets, 3D stacking): increasingly important for AI chips.

Semiconductor value chain

Stage	What happens	Indian status (2026)
Design	Architecture, layout, verification	Strong global design base
Fabrication (fab)	Circuits built on silicon wafers	First fab (Dholera) nearing production
ATMP / OSAT	Assembly, testing, packaging	Several units in commercial production

ATMP/OSAT ≠ fab. Wide-bandgap GaN and SiC beat silicon for power and RF uses. The node number is now a generation label, not a literal transistor length.

89 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): Quantum computers based on superconducting qubits must be operated at temperatures close to absolute zero.

Reason (R): At higher temperatures, thermal energy destroys superconductivity and disturbs the fragile quantum states of the qubits, causing decoherence.

(a) Both A and R are true and R is the correct explanation of A ✓

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

The exam doesn't ask how much you studied. It asks where you stand among everyone who studied too.

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Explanation

The correct answer is (A): both A and R are true, and R correctly explains A. Superconducting circuits work only below a critical temperature, and their quantum states survive only if thermal noise is far smaller than the qubit's energy gap. So they are cooled to about 10-20 millikelvin in dilution refrigerators.

ASSERTION - TRUE

• Superconducting qubits are tiny electrical circuits made from materials like aluminium or niobium, using Josephson junctions (two superconductors separated by a thin insulator).
• They are cooled in dilution refrigerators to a few millikelvin - colder than outer space (about 2.7 K).

REASON - TRUE, AND IT EXPLAINS A

• Superconductivity (zero electrical resistance) exists only below a critical temperature, about 1.2 K for aluminium.
• Qubit energy levels are separated by microwave-scale energies. Heat would randomly excite them and scramble information.
• DECOHERENCE is the loss of quantum behaviour (superposition and entanglement) through interaction with the environment. It is the central engineering challenge, so cold, shielded environments plus error correction are needed.

NOBEL LINK

• The Nobel Prize in Physics 2025 (Clarke, Devoret, Martinis) was for showing macroscopic quantum tunnelling and energy quantisation in a superconducting electrical circuit - the physics behind today's superconducting qubits.

TOPIC REVISION - QUANTUM COMPUTING BASICS

• Qubit: unlike a bit (0 or 1), it can be in a superposition of both.
• Entanglement: correlated qubits whose joint state cannot be described separately.
• Quantum advantage: for specific problems (simulating molecules, optimisation, factoring - which threatens RSA encryption, motivating post-quantum cryptography).
• Other qubit types: trapped ions, photons (often at room temperature), neutral atoms, spin qubits. Not all need millikelvin cooling - so the assertion is specific to superconducting qubits.

INDIA - NATIONAL QUANTUM MISSION

• Approved in 2023 for 2023-24 to 2030-31, with an outlay of about ₹6,003.65 crore, under DST.
• Goals: quantum computers of 50-1,000 physical qubits; satellite-based secure quantum communication over 2,000 km; and sensors and materials.
• Four thematic hubs: computing, communication, sensing and metrology, and materials and devices.

> The cooling requirement applies to SUPERCONDUCTING qubits; photonic qubits can operate warm. Decoherence, not slowness, is the core challenge.

90 **On 30 October 2026, GSLV-F18 launched the navigation satellite NVS-03, restoring NavIC to its minimum operational configuration of four satellites. With reference to NavIC and satellite navigation, consider the following statements:**

1. NavIC is a global navigation satellite system designed to provide positioning services worldwide, like GPS.
2. Atomic clocks are critical to satellite navigation because a receiver calculates its distance from each satellite using the travel time of the signal.
3. NVS-03 was first placed in a Geosynchronous Transfer Orbit, from which it must use its own propulsion system to reach its operational orbit.

Which of the statements given above is/are correct?

(a) 1 and 2 only	**(b) 2 and 3 only ✓**
(c) 1 and 3 only	(d) 1, 2 and 3

A limited number of places. One honest question: are you holding yours?

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Explanation

The correct answer is (b) 2 and 3 only. Statement 1 is wrong: NavIC is a REGIONAL system, covering India and about 1,500 km beyond its borders. GPS (USA), GLONASS (Russia), Galileo (EU) and BeiDou (China) are the global systems.

STATEMENT-WISE ANALYSIS

• Statement 1 - WRONG, for the reason in the verdict. A regional system needs far fewer satellites: the design is 7 (3 in geostationary orbit and 4 in inclined geosynchronous orbits), against 24 or more in a global system.

• Statement 2 - CORRECT. Each satellite broadcasts its position and the exact time. The receiver multiplies the signal's travel time by the speed of light to get its distance (a 'pseudorange'). Signals from at least four satellites solve for latitude, longitude, altitude AND the receiver's own clock error (trilateration). Light travels about 30 cm in 1 nanosecond, so clocks must be extremely stable. NVS-03 carries an indigenous rubidium atomic clock alongside procured clocks - India's third indigenous clock in orbit. Earlier IRNSS satellites lost service when imported clocks failed.

• Statement 3 - CORRECT. GSLV-F18 (its 20th flight) put the 2,232-kg satellite into a Geosynchronous Transfer Orbit - an elliptical orbit with a low perigee and an apogee near 36,000 km. The satellite's own engine then circularises the orbit at the apogee (orbit raising). NVS-02 (January 2025) reached GTO but could not complete orbit raising because of a valve problem, showing how critical this step is.

TOPIC REVISION - NavIC

• Developed by ISRO; earlier called IRNSS (Indian Regional Navigation Satellite System).

• Two services: Standard Positioning Service (civilian) and Restricted Service (strategic, encrypted).

• Signals: L5 and S band, with L1 added in the second-generation NVS satellites. L1 is the band most smartphones already use for GPS, so it improves device compatibility.

• The 'minimum operational configuration' is four satellites, to give position and time.

• Uses: vehicle tracking, fisheries alerts, disaster warnings, railway tracking, precise timing for power grids and banking, and defence.

RELATED SYSTEMS

• GAGAN: ISRO-AAI's satellite-based augmentation system that corrects GPS for aviation.

• QZSS: Japan's regional system, also using inclined geosynchronous orbits.

Global and regional navigation systems

System	Operator	Coverage
GPS	USA	Global
GLONASS	Russia	Global
Galileo	European Union	Global
BeiDou	China	Global
NavIC	India (ISRO)	Regional: India + ~1,500 km
QZSS	Japan	Regional

NavIC is regional, not global. A transfer orbit is not the final orbit - the satellite raises itself. Navigation accuracy depends on the precision of the clocks.

The exam ranks everyone together, whatever language they write in. So does this.

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91 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): Proteins in living organisms are built almost exclusively from L-amino acids rather than their D-mirror images.

Reason (R): Glycine, the simplest amino acid, has no chiral carbon atom and therefore has no mirror-image form.

(a) Both A and R are true and R is the correct explanation of A	**(b) Both A and R are true but R is NOT the correct explanation of A ✓**
(c) A is true but R is false	(d) A is false but R is true

Explanation

The correct answer is (B): both A and R are true, but R does not explain A. Glycine being achiral is a fact about one amino acid. It says nothing about why life chose the L-form for the other 19 - the puzzle of 'homochirality' that the 2026 Chemistry Nobel helped explain.

ASSERTION - TRUE

• Chiral molecules exist as two non-superimposable mirror images (enantiomers), like left and right hands.
• Ribosomes incorporate L-amino acids into proteins, while sugars in DNA and RNA are D-forms. This single-handedness is called HOMOCHIRALITY.
• Rare D-amino acids occur in bacterial cell walls and some peptides, but not in ribosomally made proteins.

REASON - TRUE, BUT IT DOES NOT EXPLAIN A

• A carbon atom is chiral when it bears four different groups. Glycine's side chain is just hydrogen, so its central carbon carries two identical H atoms - it is achiral.
• This is an exception, not an explanation of why all the other amino acids are L.

CURRENT AFFAIRS - NOBEL PRIZE IN CHEMISTRY 2026

• Henri B. Kagan and Kenso Soai were awarded 'for the discovery of non-linear effects and autocatalysis in asymmetric organic synthesis'.
• Non-linear effect (Kagan): a catalyst that is only partly enriched in one enantiomer can give a product far more enriched - so a small imbalance can be amplified.
• Soai reaction: an autocatalytic reaction in which the product catalyses its own formation with the same handedness, turning a tiny initial excess into almost pure single-handed product. This offers a plausible chemical route to how life's homochirality could have emerged.

WHY CHIRALITY MATTERS - APPLICATIONS

• Medicines: receptors and enzymes are themselves chiral, so enantiomers can act differently. In the thalidomide tragedy (1950s-60s) one form was linked to birth defects; the forms also interconvert in the body. Regulators now require each enantiomer to be studied, and many drugs are sold as single enantiomers (e.g. esomeprazole).
• Agrochemicals, flavours and fragrances: for example, the two forms of carvone smell of spearmint and caraway.
• Physical properties: enantiomers have identical melting and boiling points but rotate plane-polarised light in opposite directions (optical activity).

> Both statements are true, but glycine's achirality is an exception, not the cause of L-homochirality. That is answer (B), not (A).

92 **India's NavIC constellation uses both geostationary orbits and inclined geosynchronous orbits. Which one of the following statements about these orbits is correct?**

(a) Every geosynchronous satellite remains fixed above a single point on the equator, whatever its orbital inclination.

(b) Geosynchronous satellites orbit at about 2,000 km, the height at which their period matches Earth's rotation.

(c) A satellite in an inclined geosynchronous orbit traces a figure-of-eight ground track centred on a fixed longitude. ✓

(d) A single geostationary satellite is enough for a receiver to find its full three-dimensional position.

Explanation

The correct answer is (c). A geosynchronous orbit has an orbital period of one sidereal day (about 23 h 56 min). If it is tilted relative to the equator, the satellite swings north and south each day while keeping the same average longitude. Seen from the ground, its track is a figure-of-eight (analemma) shape.

OPTION-WISE ANALYSIS

• Option (a) - WRONG. Only a GEOSTATIONARY satellite (a geosynchronous orbit with zero inclination, circular, above the equator) appears fixed in the sky. Inclined geosynchronous satellites move north-south daily. Every geostationary orbit is geosynchronous, but not every geosynchronous orbit is geostationary.

• Option (b) - WRONG. The period matches Earth's rotation only at about 35,786 km altitude (about 42,164 km from Earth's centre). Altitudes of about 160-2,000 km are low Earth orbit, used by remote-sensing satellites and space stations, where orbits take about 90-120 minutes.

• Option (c) - CORRECT, for the reason in the verdict.

• Option (d) - WRONG. A receiver needs signals from at least FOUR satellites to solve for 3D position plus its own clock error. This is why NavIC needs a minimum of four working satellites.

WHY NavIC MIXES THE TWO ORBITS

• Geostationary satellites give continuous coverage over the Indian Ocean region.

• Inclined geosynchronous satellites (NavIC uses about 29° inclination) add north-south geometric spread. That improves the 'geometry' of the fix (lower Dilution of Precision), giving better accuracy with fewer satellites.

• Both keep satellites always visible over India, so a regional system can work with only seven satellites.

TOPIC REVISION - COMMON ORBIT TYPES

• LEO (below ~2,000 km): Earth observation, the ISS, internet constellations.

• Sun-synchronous polar orbit (~600-800 km): crosses each latitude at the same local solar time, giving consistent lighting for imaging. Used by Cartosat and Resourcesat; usually launched by PSLV.

• MEO (~20,000 km): GPS, Galileo.

• GEO (~35,786 km): communication (GSAT) and weather (INSAT) satellites.

• GTO: a temporary elliptical orbit used to reach GEO.

• Halo / Lagrange-point orbits: Aditya-L1 orbits around Sun-Earth L1.

Orbits at a glance

Orbit	Approximate altitude	Typical use
Low Earth Orbit	160-2,000 km	Imaging, space stations
Sun-synchronous	600-800 km	Remote sensing
Medium Earth Orbit	~20,000 km	GPS, Galileo
Geostationary	~35,786 km (equatorial)	Communication, weather, NavIC
Inclined geosynchronous	~35,786 km (tilted)	NavIC, QZSS

> Geostationary is a special case of geosynchronous (zero inclination). GEO altitude is about 35,786 km. Navigation needs at least four satellites.

Write in your language. Be ranked against everyone. Nothing here is measured in a smaller room.

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93 **The Nobel Prize in Physics 2026 was awarded to Francis Halzen for contributions to the IceCube Neutrino Observatory and the discovery of high-energy neutrinos of astrophysical origin. With reference to neutrinos, consider the following statements:**

1. Neutrinos are electrically neutral and interact only through the weak nuclear force and gravity, so they can pass through enormous amounts of matter almost unaffected.
2. IceCube detects neutrinos by recording the faint Cherenkov light emitted by charged particles produced when a neutrino occasionally interacts with the Antarctic ice.
3. Unlike charged cosmic rays, neutrinos are not deflected by magnetic fields in space, so their arrival direction points back to their source.
4. The phenomenon of neutrino oscillation shows that neutrinos have a non-zero mass.

How many of the statements given above are correct?

(a) Only one

(b) Only two

(c) Only three

(d) All four ✓

Explanation

The correct answer is (d) All four. Each statement describes an established property of neutrinos or the detection principle of IceCube. Together they explain why neutrinos are ideal 'messengers' from distant, violent cosmic sources.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. Neutrinos are leptons with no electric charge, so they feel neither electromagnetism nor the strong force. Trillions pass through each person every second, mostly from the Sun's fusion reactions. That is why detectors must be huge and shielded, often deep underground or under ice.

• Statement 2 - CORRECT. IceCube, at the South Pole, has about 5,000 light sensors spread through a cubic kilometre of deep, very clear ice. In a rare collision a neutrino produces a charged particle (such as a muon) that travels faster than light does IN ICE. This gives off a cone of bluish Cherenkov light, much like a sonic boom for light. The timing and pattern of the light reveal the neutrino's direction and energy.

• Statement 3 - CORRECT. Cosmic rays (protons and nuclei) are charged, and galactic magnetic fields scramble their paths, hiding their origins. Neutrinos travel in straight lines and are not absorbed by dust or gas. IceCube has linked high-energy neutrinos to a blazar (TXS 0506+056, 2018) and to the galaxy NGC 1068.

• Statement 4 - CORRECT. Neutrinos come in three flavours (electron, muon, tau) and change from one to another as they travel. This is possible only if they have mass (Nobel Physics 2015: Kajita and McDonald), which requires physics beyond the original Standard Model. The exact masses are still being measured.

TOPIC REVISION - SOURCES AND 'MULTI-MESSENGER' ASTRONOMY

• Sources: the Sun (fusion), nuclear reactors (beta decay), the atmosphere (cosmic-ray showers), supernovae (SN 1987A), and active galactic nuclei.

• Multi-messenger astronomy: observing one event with light, neutrinos, gravitational waves and cosmic rays.

INDIA CONNECTION

• The India-based Neutrino Observatory (INO) has been planned under a mountain at Bodi West Hills, Theni, Tamil Nadu, using a magnetised iron calorimeter (ICAL) to study atmospheric neutrinos and their mass ordering. It is a DAE-DST project that has faced environmental and legal delays.

• Historically, the Kolar Gold Fields mine (Karnataka) hosted the first detection of atmospheric neutrinos, in 1965.

Neutrinos vs other cosmic messengers

Messenger	Charged?	Deflected by magnetic fields?	Absorbed en route?
Photons (light)	No	No	Yes (dust, gas)
Cosmic rays	Yes	Yes	Partly
Neutrinos	No	No	Almost never
Gravitational waves	No	No	No

Detectors see the Cherenkov light from secondary charged particles, not the neutrino itself. Neutrinos are neutral but NOT massless.

The costliest mistake in this exam isn't a wrong answer. It's a year you can't get back.

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94 **The New Delhi Declaration adopted at the 18th BRICS Summit (September 2026) reiterated support for reforming the UN Security Council, including a greater role for India and Brazil. With reference to the UN Security Council, consider the following statements:**

1. The veto of a permanent member applies to substantive decisions but not to procedural matters.
2. Non-permanent members are elected by the General Assembly for two-year terms by a two-thirds majority.
3. An amendment to the UN Charter to enlarge the Security Council must be ratified by two-thirds of UN members, including all five permanent members.
4. India has never served as a non-permanent member of the Security Council.

How many of the statements given above are correct?

(a) Only one

(b) Only two

(c) Only three ✓

(d) All four

A test tells you where you stand. Daily practice is how you move.
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Explanation

The correct answer is (c) Only three. Statements 1, 2 and 3 are correct. Statement 4 is wrong: India has been a non-permanent member eight times, most recently in 2021-22.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. Under Article 27 of the Charter, procedural decisions need any 9 of 15 votes. Substantive decisions need 9 votes including the 'concurring votes' of all five permanent members (P5: US, UK, France, Russia, China). By practice, an abstention by a permanent member is not treated as a veto.

• Statement 2 - CORRECT. The General Assembly elects 5 of the 10 non-permanent members each year for two-year terms, by a two-thirds majority, on a regional basis. Members cannot be re-elected immediately.

• Statement 3 - CORRECT. Article 108: an amendment needs a two-thirds vote in the General Assembly AND ratification by two-thirds of members, including all P5. This gives the P5 an effective veto over reform. The only enlargement so far (1965) raised membership from 11 to 15.

• Statement 4 - WRONG, for the reason in the verdict. India's eight terms were 1950-51, 1967-68, 1972-73, 1977-78, 1984-85, 1991-92, 2011-12 and 2021-22. During its 2021-22 term India presided in August 2021 and December 2022.

THE REFORM DEBATE - WHO WANTS WHAT

• G4 (India, Brazil, Germany, Japan): new permanent seats for themselves and more non-permanent seats.

• Uniting for Consensus ('Coffee Club', led by Italy, Pakistan, Argentina and others): opposes new permanent seats and prefers longer-term non-permanent seats.

• African Union (Ezulwini Consensus, 2005): two permanent seats with veto and five non-permanent seats for Africa.

• Forum: the Intergovernmental Negotiations (IGN) in the General Assembly, which still has no agreed negotiating text.

BRICS LINK (September 2026)

The New Delhi Declaration supported 'comprehensive reform' of the UN, including the Security Council, and backed the aspirations of India and Brazil. This is a political statement of support, not a commitment that changes the Charter.

OTHER UN ORGANS - QUICK RECALL

General Assembly (one country, one vote); the Economic and Social Council (54 members); the International Court of Justice (15 judges, The Hague); the Secretariat; the Trusteeship Council (dormant since 1994).

UN Security Council: voting rules

Type of decision	Votes needed	P5 veto?
Procedural	9 of 15	No
Substantive	9 of 15 incl. all P5 concurring	Yes (abstention is not a veto)
Charter amendment (Article 108)	2/3 of UNGA + ratification by 2/3 of members incl. P5	Yes

The veto applies only to substantive matters, and abstention is not a veto. Charter amendments need all P5 to ratify (Article 108). India: 8 terms as a non-permanent member, the latest 2021-22.

95 **The 26th Summit of the Shanghai Cooperation Organisation (SCO), held in Bishkek, Kyrgyzstan, on 31 August-1 September 2026, marked the organisation's 25th anniversary. With reference to the SCO, consider the following statements:**

1. The Council of Heads of State is the SCO's supreme decision-making body.
2. Belarus is a full member of the SCO.
3. The Executive Committee of the SCO's Regional Anti-Terrorist Structure (RATS) is located in Tashkent.
4. Pakistan has taken over the SCO chairmanship for 2026-27.

How many of the statements given above are correct?

(a) Only one

(b) Only two

(c) Only three

(d) All four ✓

Explanation

The correct answer is (d) All four. The Bishkek summit (attended by all ten members, including India) adopted the Bishkek Declaration and 28 outcome documents, and passed the chairmanship to Pakistan for 2026-27.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. The SCO has three main councils:
- Council of Heads of State (CHS): the supreme body; meets annually.
- Council of Heads of Government: mainly economic and trade cooperation; adopts the budget.
- Council of Foreign Ministers.
All decisions are taken by CONSENSUS, so any member can block an outcome.

• Statement 2 - CORRECT. Belarus became the tenth full member at the Astana summit (July 2024), after Iran (2023). The ten members are China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, India, Pakistan, Iran and Belarus. India and Pakistan joined in 2017 (Astana).

• Statement 3 - CORRECT. RATS is one of the SCO's two permanent bodies and coordinates action against the 'three evils' - terrorism, separatism and extremism. The other is the Secretariat in Beijing.

• Statement 4 - CORRECT. The chair rotates annually among members. Kyrgyzstan chaired 2025-26; Pakistan hosts the next CHS in 2027.

BISHKEK OUTCOMES (2026) - THINGS TO NOTE

• The Bishkek Declaration is a political, not legally binding, statement.

• Leaders also adopted a Protocol amending the SCO Charter and documents on counter-terrorism, connectivity, energy and climate.

• India pressed for action against the whole terror ecosystem - financing, recruitment and safe havens. Before the summit, India and Uzbekistan raised their ties to a Comprehensive Strategic Partnership.

TOPIC REVISION - SCO BASICS

• Origin: the 'Shanghai Five' (1996: China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan), on border confidence-building. It became the SCO in 2001 with Uzbekistan; the Charter was signed in 2002 at St Petersburg.

• Official languages under the Charter: Russian and Chinese.

• Categories: members, observers (e.g. Mongolia) and dialogue partners (e.g. Türkiye, Egypt).

INDIA'S STAKES

Engagement with Central Asia (energy, connectivity via Chabahar and the International North-South Transport Corridor), counter-terrorism cooperation, and a forum to engage Russia and China together. India opposes connectivity projects that violate sovereignty - for example the China-Pakistan Economic Corridor under the Belt and Road Initiative.

SCO at a glance

Feature	Detail
Founded	2001 (Shanghai Five from 1996)
Members	10 (Belarus joined 2024; Iran 2023; India & Pakistan 2017)
Permanent bodies	Secretariat (Beijing), RATS Executive Committee (Tashkent)
Supreme body	Council of Heads of State
Chair 2026-27	Pakistan

Secretariat = Beijing; RATS = Tashkent. Belarus is a full member (2024); Mongolia is an observer. Declarations are consensus political documents, not treaties.

96 Which one of the following is a Central Sector Scheme rather than a Centrally Sponsored Scheme?

(a) Samagra Shiksha

(b) Pradhan Mantri Awas Yojana - Gramin

(c) Jal Jeevan Mission

(d) PM Kisan Samman Nidhi ✓

Explanation

The correct answer is (d) PM Kisan Samman Nidhi. PM-KISAN is fully funded and implemented by the Union: ₹6,000 a year in three instalments is credited directly to eligible farmer families through DBT. The Cabinet has approved its continuation for 2026-27 to 2030-31.

OPTION-WISE ANALYSIS

• Option (a) - WRONG. Samagra Shiksha (2018; Ministry of Education) merged SSA, RMSA and teacher education. It is a Centrally Sponsored Scheme, usually funded 60:40 (90:10 for North-Eastern and Himalayan States) and implemented by State societies.

• Option (b) - WRONG. PMAY-Gramin (Ministry of Rural Development) provides rural houses. It is a CSS with 60:40 cost-sharing (90:10 for NE/Himalayan States; 100% for UTs without legislature).

• Option (c) - WRONG. The Jal Jeevan Mission (2019; Ministry of Jal Shakti) aims at tap-water connections for every rural household. It is a CSS implemented by States, with village water committees and community contribution.

• Option (d) - CORRECT, for the reason in the verdict.

TOPIC REVISION - THE TWO CATEGORIES

• Central Sector Schemes: 100% funded by the Centre and implemented by central agencies, usually on Union List subjects or direct-to-beneficiary transfers. Examples: PM-KISAN, PM-JANMAN components, PLI schemes.

• Centrally Sponsored Schemes: in State List or Concurrent areas; jointly funded and implemented by States. Funds flow under Article 282 (grants for any public purpose).

• CSS sub-types (after the 2015 Sub-Group of Chief Ministers, NITI Aayog):

- 'Core of the core' (social protection, e.g. the NSAP; schemes for SCs, STs and minorities).
- 'Core' (most CSS).
- 'Optional'.

PM-KISAN DESIGN

• Launched in February 2019 (effective from December 2018); Ministry of Agriculture and Farmers Welfare.

• Beneficiaries: landholding farmer families, subject to exclusions (institutional landholders, income-tax payers, constitutional post-holders, certain professionals and pensioners).

• Delivery: States identify and verify beneficiaries, but payment is central through Aadhaar-seeded accounts. e-KYC and land-record seeding are mandatory.

WHY THE DISTINCTION MATTERS

It is central to fiscal federalism debates: States object to CSS conditions and matching-share burdens. The 14th Finance Commission's higher devolution prompted the 2016 rationalisation of CSS.

Central Sector vs Centrally Sponsored Schemes

Feature	Central Sector Scheme	Centrally Sponsored Scheme
Funding	100% Union	Shared (typically 60:40; 90:10 for NE/Himalayan States)
Implementation	Central ministry or agency	State Governments
Subjects	Mostly Union List / direct transfers	State or Concurrent List
Examples	PM-KISAN	Samagra Shiksha, PMAY-G, Jal Jeevan Mission

State-run with cost-sharing = CSS (Samagra Shiksha, PMAY-G, Jal Jeevan Mission). 100% central with direct transfer = Central Sector (PM-KISAN). Full central funding alone does not make a scheme Central Sector - NSAP is a 'core of the core' CSS.

97 **On 14 October 2026, the Union Cabinet approved the continuation of the National Social Assistance Programme (NSAP) for 2026-27 to 2030-31, renaming it the Pradhan Mantri Samajik Sahayata Yojana. With reference to this programme, consider the following statements:**

1. The programme was launched in 1995 and gives effect to the Directive Principle on public assistance in old age, sickness and disablement.
2. Under the revised disability pension, the minimum disability threshold has been lowered from 80 per cent to the 40 per cent 'benchmark disability' standard of the Rights of Persons with Disabilities Act, 2016.
3. The programme is administered by the Ministry of Social Justice and Empowerment.

Which of the statements given above is/are correct?

(a) 1 and 2 only ✓	(b) 2 and 3 only
(c) 1 and 3 only	(d) 1, 2 and 3

If you only find out on result day, you found out too late.

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Explanation

The correct answer is (a) 1 and 2 only. Statement 3 is wrong: the NSAP is run by the Department of Rural Development, Ministry of Rural Development - a common trap, since the subject sounds like 'social justice'.

STATEMENT-WISE ANALYSIS

• Statement 1 - CORRECT. The NSAP was launched on 15 August 1995. It is linked to Article 41: the State shall, within the limits of its economic capacity, provide public assistance in cases of unemployment, old age, sickness and disablement. As a Directive Principle, this is non-justiciable but guides policy.

• Statement 2 - CORRECT. The RPwD Act, 2016 defines 'benchmark disability' as at least 40% of a specified disability. It also requires disability assistance to be at least 25% higher than similar schemes for others. The revision also removes the minimum age, so eligibility starts from birth, and raises rates. The old-age, widow and family-benefit components continue in their existing form, with new names only.

• Statement 3 - WRONG, for the reason in the verdict.

THE 2026 DECISION (Cabinet, 14 October 2026)

• Outlay: ₹53,428 crore for five years; about 3.2 crore beneficiaries in all 36 States and UTs.

• New names:

- Old-age pension → PM Vridhavastha Pension Yojana.
- Widow pension → PM Vidhawa Pension Yojana.
- Disability pension → PM Divyangjan Pension Yojana.
- Family benefit → PM Parivar Labh Yojana.

• Detailed guidelines are to follow - note that a Cabinet approval comes before operational implementation.

TOPIC REVISION - DESIGN FEATURES

• Target group: households below the poverty line.

• It is a Centrally Sponsored Scheme placed among the 'core of the core' schemes. Central assistance is 100%, but States are urged to TOP UP the amount, which is why pension levels differ across States.

• Payments go through Direct Benefit Transfer to bank or post-office accounts.

• Transparency: social audits and public disclosure of beneficiary lists via the NSAP-PPS portal.

• Related scheme: Annapurna (free foodgrains for elderly people not covered by old-age pension), now transferred to the States.

NSAP renamed: Pradhan Mantri Samajik Sahayata Yojana (2026)

Old component	New name	2026 change
Old-age pension	PM Vridhavastha Pension Yojana	Name only
Widow pension	PM Vidhawa Pension Yojana	Name only
Disability pension	PM Divyangjan Pension Yojana	Threshold 80% → 40%; no minimum age; higher rates
Family benefit	PM Parivar Labh Yojana	Name only

> NSAP = Ministry of Rural Development, not Social Justice. 40% = 'benchmark disability' under the RPwD Act, 2016. A Cabinet approval is not yet implementation.

98 **In the Global Hunger Index 2026, released in October 2026, India ranked 100th among 122 countries with a score of 24.1, in the 'serious' category. With reference to the Global Hunger Index, consider the following statements:**

1. It is jointly published by the Food and Agriculture Organization and the World Food Programme.
2. Its score combines four indicators: undernourishment, child stunting, child wasting and child mortality.
3. The child mortality indicator refers to the mortality rate of children under the age of five.
4. A higher score indicates a better (lower) level of hunger.

How many of the statements given above are correct?

(a) Only one	**(b) Only two ✓**
(c) Only three	(d) All four

Practise daily, and the test stops being a surprise.

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Explanation

The correct answer is (b) Only two. Statements 2 and 3 are correct. Statement 1 is wrong because the GHI is published by NGOs, not UN agencies. Statement 4 is wrong because a higher score means MORE severe hunger.

STATEMENT-WISE ANALYSIS

• Statement 1 - WRONG. The GHI is a peer-reviewed report by Concern Worldwide (Ireland) and Welthungerhilfe (Germany), with Helvetas in the 2026 edition. The FAO publishes 'The State of Food Security and Nutrition in the World' (SOFI) jointly with IFAD, UNICEF, WFP and WHO - a different report. The FAO does supply the GHI's undernourishment data.

• Statement 2 - CORRECT. Weights:

- Undernourishment (share of population with insufficient calories): 1/3.
- Child stunting (low height-for-age; chronic undernutrition): 1/6.
- Child wasting (low weight-for-height; acute undernutrition): 1/6.
- Under-five mortality: 1/3.

• Statement 3 - CORRECT, as above.

• Statement 4 - WRONG. Scores run from 0 (no hunger) to 100. Bands: low (<10), moderate (10-19.9), serious (20-34.9), alarming (35-49.9), extremely alarming (≥50).

INDIA IN GHI 2026 (published October 2026; data mostly 2021-2025)

• Score 24.1, rank 100 of 122 - ahead of Pakistan, behind Sri Lanka, Nepal and Bangladesh.

• Undernourishment 9.8%; child stunting 29.3%; child wasting 19% (the highest in South Asia); under-five mortality 2.7%.

GOVERNMENT'S POSITION

• The Ministry of Women and Child Development has called the GHI a 'flawed' measure of hunger.

• Its arguments: three of four indicators concern children and reflect health, sanitation and care as well as food; and undernourishment is estimated from a small opinion-poll sample.

• It points to its own data (Poshan Tracker, NFHS).

• For the exam, distinguish the report's data from the government's critique - both are 'facts' about the debate.

RELATED SCHEMES

PM Garib Kalyan Anna Yojana (free foodgrains under the National Food Security Act), POSHAN 2.0 (Saksham Anganwadi), PM POSHAN (school meals), Anaemia Mukt Bharat, and rice fortification.

Global Hunger Index: indicators and India (2026)

Indicator	Weight	India value
Undernourishment	1/3	9.8%
Child stunting	1/6	29.3%
Child wasting	1/6	19.0%
Under-five mortality	1/3	2.7%
Overall score	-	24.1 (serious), rank 100/122

GHI = Concern Worldwide + Welthungerhilfe (not FAO/WFP). Higher score = worse. Wasting = acute (weight-for-height); stunting = chronic (height-for-age).

Stamina is a skill. Marathon is where you build it before the exam asks for it.

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99 **In the following question, an Assertion (A) is followed by a Reason (R). Select the correct option from the codes given below.**

Assertion (A): The New Delhi Declaration adopted at the 18th BRICS Summit does not create legally enforceable obligations for member states.

Reason (R): BRICS has no founding treaty or charter and no permanent secretariat, and its summit outcomes are adopted by consensus as political commitments.

(a) Both A and R are true and R is the correct explanation of A ✓

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Explanation

The correct answer is (A): both A and R are true, and R correctly explains A. BRICS is an informal grouping, not a treaty-based international organisation, so its declarations are political ('soft-law') commitments rather than binding legal obligations.

ASSERTION - TRUE

• The New Delhi Declaration (a 140-paragraph consensus text adopted on 12 September 2026) records shared positions on:
- global governance reform (UN, IMF quotas);
- counter-terrorism;
- concerns over unilateral tariffs;
- climate finance;
- AI and digital cooperation;
- local-currency settlements.
• Commentators on the outcome note that it is not a legally binding treaty.

REASON - TRUE, AND IT EXPLAINS A

• Legal obligations arise from treaties that states sign and ratify (Vienna Convention on the Law of Treaties, 1969).
• BRICS has no constitutive treaty, no legal personality as a bloc, and no secretariat. The rotating chair organises meetings.
• Decisions are by consensus. So implementation depends on each member's national action.

IMPORTANT NUANCE - THE EXCEPTIONS

Some BRICS-created INSTITUTIONS do rest on treaties: the New Development Bank (Articles of Agreement, 2014) and the Contingent Reserve Arrangement (Treaty, 2014). These do create legal obligations for signatories. So 'BRICS declarations are non-binding' is correct, but 'nothing in BRICS is binding' would be wrong.

COMPARE WITH OTHER GROUPINGS

• G20 and G7: informal, no charter or secretariat; leaders' declarations are non-binding.
• SCO: a treaty-based organisation (2002 Charter) with permanent bodies, though its summit declarations are still political.
• ASEAN: legal personality under the ASEAN Charter (2008); secretariat in Jakarta.
• BIMSTEC: its Charter came into force in 2024, giving it legal personality; secretariat in Dhaka.

100 The 18th BRICS Summit was held in New Delhi on 12-13 September 2026 under India's chairship. Which one of the following countries participates in BRICS as a 'partner country' rather than as a full member?

(a) Indonesia

(b) Ethiopia

(c) Nigeria ✓

(d) United Arab Emirates

Explanation

The correct answer is (c) Nigeria. Nigeria was admitted as a BRICS partner country in January 2025 (under Brazil's chairship) and remained a partner at the 2026 New Delhi Summit. The other three are full members.

OPTION-WISE ANALYSIS

• Option (a) - WRONG. Indonesia became a full member in January 2025 - the first Southeast Asian member.
• Option (b) - WRONG. Ethiopia became a full member in January 2024, along with Egypt, Iran and the UAE, after invitations at the Johannesburg Summit (2023).
• Option (c) - CORRECT, for the reason in the verdict.
• Option (d) - WRONG. The UAE became a full member in January 2024.

TOPIC REVISION - EVOLUTION OF BRICS

• 2001: Jim O'Neill (Goldman Sachs) coins 'BRIC'.
• 2006: first BRIC foreign ministers' meeting; 2026 marked 20 years.
• 2009: first leaders' summit (Yekaterinburg).
• 2010-11: South Africa joins (BRICS).
• 2023 (Johannesburg): invitations to six countries.
• 2024 (Kazan): a 'partner country' category is created. The 2026 Summit text was adopted by 11 member states.

MEMBER vs PARTNER

• Full members negotiate and adopt summit declarations by consensus.
• Partner countries attend summits and outreach sessions and engage with initiatives, but are not full decision-making members.
• Partners include Belarus, Bolivia, Cuba, Kazakhstan, Malaysia, Thailand, Uganda, Uzbekistan, Vietnam and Nigeria.

INSTITUTIONS

• New Development Bank (NDB): agreed at Fortaleza (2014); HQ Shanghai; first regional office in Johannesburg; also has an India regional office (GIFT City).
• Contingent Reserve Arrangement: a liquidity safety net.
• BRICS has NO charter and NO permanent secretariat; the chair rotates (B-R-I-C-S order).

NEW DELHI 2026 HIGHLIGHTS

• Theme: 'Building for Resilience, Innovation, Cooperation and Sustainability'.
• The declaration backed UN and IMF quota reform, counter-terrorism, and resilient supply chains (including critical minerals).
• China chairs BRICS in 2027.

BRICS expansion timeline

Year	Change
2006	First BRIC foreign ministers' meeting
2011	South Africa joins
2024	Egypt, Ethiopia, Iran, UAE join; partner category created (Kazan)
2025	Indonesia joins as member; Nigeria admitted as partner
2026	18th Summit, New Delhi (India chair)

> Partner status (created in 2024) is not membership. Indonesia (2025) and Ethiopia/UAE (2024) are full members; Nigeria is a partner.

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See your own analytics

You have worked through this paper, and the question that matters now is a simple one: where do you actually stand? A booklet can show you which answers were right. It cannot show you why you lost the marks you lost, or what to fix before your next paper.

That is what Testogram's analytics are for. Take a test in the Testogram app and you get the whole picture: your score, and your accuracy subject by subject and topic by topic; beside each topic, how the students who sat it on time did, once there are enough of them to compare with; how far you are from the next band, and how many questions would close that gap; how many answers you changed from right to wrong, or from wrong to right, and what those changes cost or earned you; and, as you sit a series' tests on time, whether you moved up from the one before.

On a paid test, your score and your analysis open on the test's results date, at the same moment for everyone who sat it. Sit it on time, before that date, and once enough students have sat it you also see where you stand among them: your band, or your rank if you make the top ten.

You can see this for yourself without paying anything. GS Full Length 1: Diagnostic is free to take in the app, and your score and your analysis open the moment you submit.

Along the way, every test you sit counts towards your daily streak and earns you Knowledge Points, and the app's home screen shows you which test is next, so your preparation keeps moving between papers, not just on test day.

Get the Testogram app from Google Play, choose your exam, and take your next test. Then you will not have to wonder where you stand; you will see it.

Testogram
Master Every Topic. Win Every Day



FOUNDER'S NOTE

Why I built Testogram

Why I Built Testogram

I appeared for the UPSC Civil Services Examination four times and reached the interview stage on three occasions. Although my journey through the examination did not end with a final selection, it gave me firsthand experience of the challenges, uncertainty and determination that define the UPSC journey.

I went on to build a career in the technology industry, working with some of the world's leading multinational companies and progressing into AI Solution Architecture.

Alongside my professional career, I spent over a decade teaching UPSC aspirants. During those years, I noticed a recurring problem. It wasn't a lack of hard work or ambition. Even capable, dedicated students often struggled to understand whether their preparation was actually improving.

They would study consistently, attempt tests and put in months of effort, yet have little clarity about where they stood, what they needed to improve or whether they were moving closer to their goal.

I had experienced that uncertainty as an aspirant. I witnessed it repeatedly as an educator. And I realised that students needed more than another question bank or test series. They needed a reliable way to measure their preparation, understand their performance and make better decisions about what to do next.

That conviction led me to build Testogram.

Testogram won't make competitive examinations easier. It is designed to make your preparation more measurable, structured and informed.

It helps you understand where you stand, identify what is holding you back, track your improvement and know what deserves your attention next. Because preparation shouldn't be based on guesswork. You deserve to know whether you're making progress.

Learn More. Win More.

Sai Vinay Sunkara
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Testogram
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The real fear isn't failing once. It's losing years and not knowing why.

Most preparation tells you where you stand once a year, on result day. By then the year is already spent. Testogram is built so that you find out every day.

TESTOGRAM

Practice.

Short daily practice on every chapter of your syllabus. You see what you have actually learned, the same day you studied it.

TESTOGRAM

Marathon.

Long sittings that build the stamina and speed the real paper demands. You find out how you hold up before it matters.

TESTOGRAM

Test series.

Full papers on a fixed schedule, with your rank and percentile among everyone who sat them.

You have seen the questions. You have not yet seen where you stand.

A booklet tells you what was right. Only sitting the test, with everyone else, tells you:

- where you rank, and in what percentile;
- which subject is holding you back;
- how far you are from the band above;
- whether you are moving up or standing still from one test to the next.

Don’t prepare in the dark. Know where you stand among those competing for your place.

Scan to join Aarohan UTS 2027 in the Testogram app.