CUET (UG) Question Paper — 2025

National Testing Agency

17th JUNE 2025 — SHIFT 1

Section III (General Test)

Solved

Examination Duration: 60 Minutes **Maximum Marks - 250**

General Instructions:

(i) *This Paper contains 50 questions. All questions are compulsory.*

(ii) *Five (5) marks will be given for each correct answer.*

(iii) *One (1) mark will be deducted for each incorrect answer.*

(iv) *If more than one option is chosen, then it will be considered as an incorrect answer.*

(v) *Unanswered questions will be given no mark.*

1. Which of the following features of metal is NOT Correct?

(A) Metals combine with oxygen to form basic oxides.

(B) All metals have same reactions with water as they have with dilute acid.

(C) Metals can form positive ions by losing electrons to non-metals.

(D) Metals are lustrous, malleable, ductile and are good conductors of heat and electricity.

Ans. Option (B) is correct.

Explanation: The incorrect statement about the features of metals is that all metals have the same reactions with water as they do with dilute acids. This is not true because the reactivity of metals varies significantly. For example, highly reactive metals like sodium react vigorously with cold water, while moderately reactive metals like magnesium react only with steam, and less reactive metals such as copper do not react with water at all. Similarly, their reactions with dilute acids also vary in terms of vigour and whether a reaction occurs.

2. Which of the following Mughal Emperor's wife was popularly known as 'Nur Jahan'?

(A) Jahangir **(B)** Shah Jahan

(C) Akbar **(D)** Bahadur Shah Zafar

Ans. Option (A) is correct.

Explanation: The wife of Mughal Emperor Jahangir, originally named Mehr-un-Nissa, was popularly known as Nur Jahan, meaning 'Light of the World'. She was not only known for her beauty but also her intelligence, administrative skills and influence in court politics. Nur Jahan effectively wielded considerable power behind the throne during Jahangir's reign.

3. The new name of Port Blair is:

(A) Sri Krishna Puram **(B)** Sri Rama Puram

(C) Sri Vijaya Puram **(D)** Sri Ashoka Puram

Ans. Option (C) is correct.

Explanation: The correct answer is: (C) Sri Vijaya Puram. In September 2024, the Indian government officially renamed Port Blair the capital of the Andaman and Nicobar Islands as Sri Vijaya Puram. Union Home Minister Amit Shah announced this change to honour India's freedom struggle and remove remnants of the colonial legacy. While the name 'Port Blair' has a colonial legacy, Sri Vijaya Puram symbolises the victory achieved in India's freedom struggle and the A&N Islands' unique role in it. Srivijaya was the ancient name of an empire that had its base in Sumatra, with influence across South-East Asia. It was also instrumental in the expansion of Buddhism. The empire was supposed to have declined around the eleventh century CE after a series of naval raids by the Cholas on its ports.

4. Which of the following is NOT an example of reflex action by our nervous system?

(A) On seeing her sweet dish, Puja has water in her mouth.

(B) Ravi touches a hot plate, and immediately removes his hand from the plate.

(C) Rakesh touches an icy cold glass and immediately removes his hand.

(D) Raju smells smoke in his house and runs out of home to save himself.

Ans. Option (D) is correct.

Explanation: The correct answer is (D). Raju smells smoke in his house and runs out of his home to save himself. Reflex actions are involuntary, automatic responses to stimuli that occur without conscious thought and are controlled by the spinal cord, not the brain. Options (B) and (C) involve immediate withdrawal from hot or cold objects—classic examples of reflexes. Option (A), salivation on seeing food, is a conditioned reflex. However, option (D) involves conscious decision-making—Raju smells smoke, assesses danger, and chooses to run, which is a voluntary response, not a reflex action. Hence, option (D) is not a reflex.

5. The calender for the year 2019 will be the same as the calender for which of the following year?

(A) 2024 **(B)** 2030 **(C)** 2037 **(D)** 2042

Ans. Option (B) is correct.

Explanation: 2019 is not a leap year (it's not divisible by 4), so we are looking for a non-leap year with the same weekday pattern.
So, 2030 has the same calendar as 2019.

6. Consider the compound interest of the following:

(1) The compound interest on ₹30500 at 15% per annum for 2 years. (Compound annually) is ₹ 9836.25

(2) The compound interest of ₹ 5000 at 20% per annum for one year is compounded (half yearly) is ₹ 6050.

Which of the above statements is/are correct?

(A) Only (1) **(B)** Only (2)

(C) (1) and (2) **(D)** Neither (1) nor (2)

Ans. Option (A) is correct.

Explanation: (1) P = ₹ 30500; R = 15% p.a.; T = 2 years

$$\text{Amount} = 30500\left(1+\frac{15}{100}\right)^2$$
$$= 30500 \times (1.15)^2$$
$$= 30500 \times 1.3225$$
$$= 40336.25$$
$$\text{C.I.} = 40336.25 - 30500$$
$$= ₹\ 9836.25$$

So, Statement 1 is correct.

(2) P = ₹ 5000; R = 20% p.a.; T = 1 year (compounded half-yearly)

$$\text{Amount} = 5000\left(1+\frac{10}{100}\right)^2$$
$$= 5000 \times (1.10)^2$$
$$= 5000 \times 1.21 = ₹\ 6050$$
$$\text{C.I.} = 6050 - 5000$$
$$= ₹\ 1050$$

So, Statement 2 is incorrect.

7. How many pairs of positive integers e, f satisfy $\frac{1}{e}+\frac{4}{f} = \frac{1}{12}$, where f is an odd integer less than 60?

(A) 7 **(B)** 59 **(C)** 3 **(D)** 61

Ans. Option (C) is correct.

Explanation: We are given:

$$\frac{1}{e}+\frac{4}{f} = \frac{1}{12},$$

where f is an odd integer less than 60
Rewriting:

$$\frac{1}{e} = \frac{1}{12}-\frac{4}{f} = \frac{f-48}{12f}$$

$$\Rightarrow \quad e = \frac{12f}{f-48}$$

We check for odd integers $f < 60$ such that e is a positive integer.
i.e., f = 49, 51, 57
Number of required pairs = 3

8. Consider the simple interest of the following:

(1) The simple interest of ₹8930 at 6% per annum for 5 years.

(2) The simple interest on ₹3080 at 13.50% per annum for 4 years.

(3) The simple interest on ₹7200 at 14.00% per annum for 7 years.

(4) The simple interest on ₹3120 at 4.00% per annum for 5 years.

The simple interests of these in increasing order are:

Choose the correct answer from the options given below:

(A) (4), (2), (3), (1) **(B)** (3), (1), (2), (4)

(C) (3), (1), (4), (2) **(D)** (4), (2), (1), (3)

Ans. Option (D) is correct.

Explanation:

(1) P = ₹ 8930; R = 6%; T = 5 years

$$\text{S.I.} = \frac{P \times R \times T}{100}$$
$$= \frac{8930 \times 6 \times 5}{100} = 2679$$

(2) P = ₹ 3080; R = 13.5%; T = 4 years

$$\text{S.I.} = \frac{P \times R \times T}{100}$$
$$= \frac{3080 \times 13.5 \times 4}{100} = 1663.20$$

(3) P = ₹ 7200; R = 14%; T = 7 years

$$\text{S.I.} = \frac{P \times R \times T}{100}$$
$$= \frac{7200 \times 14 \times 7}{100} = 7056$$

(4) P = ₹ 3120; R = 4%; T = 5 years

$$\text{S.I.} = \frac{P \times R \times T}{100}$$
$$= \frac{3120 \times 4 \times 5}{100} = 624$$

So, the correct increasing order is: 624, 1663.20, 2679, 7056, i.e., (4), (2), (1), (3).

9. Which of the following is the largest State in India in terms of area?

(A) Rajasthan **(B)** Maharashtra

(C) Uttar Pradesh **(D)** Madhya Pradesh

Ans. Option (A) is correct.

Explanation: Rajasthan is the largest state in India in terms of area. It covers approximately 342,239 km^2, making it the largest

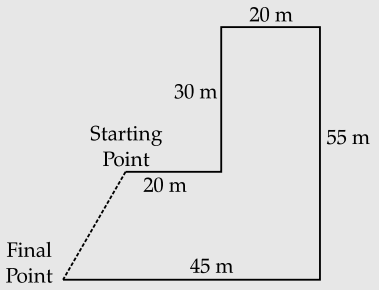
state geographically. It is followed by Madhya Pradesh (308,209 km^2), Maharashtra (308,000 km^2) and Uttar Pradesh (243,286 km^2) in terms of area. While Uttar Pradesh ranks first in terms of population.

10. Rekha faces towards North, then turns to her right and walks 20 m. She then turns to her left and walks 30 m. Next she moves 20 m to her right. She turns to her right again and walks 55 m. Finally she turns to the right and moves 45 m. in which direction is she now from her starting point?

(A) South **(B)** South-East
(C) North-East **(D)** South-West

Ans. Option (D) is correct.

Explanation:



So, she is now in South-West direction from her starting point.

11. The author of the book Midnight's Children is:

(A) Arundhati Roy **(B)** Salman Rushdie
(C) Ruskin Bond **(D)** Khushwant Singh

Ans. Option (B) is correct.

Explanation: 'Midnight's Children' is a famous novel written by Salman Rushdie. Published in 1981, the book is a work of historical fiction that revolves around India's transition from British colonial rule to independence and the partition. It won the Booker Prize in 1981 and was later awarded the Booker of Bookers.

12. Which of the following qualifications of eligibility to be appointed as President of India is NOT correct?

(A) Should have completed the minimum age of 32 years.
(B) Should be a citizen of India.
(C) Should be qualified for election as a member of the House of the People.
(D) Must not hold any office of profit under the Government of India or Government of any State or under any authority.

Ans. Option (A) is correct.

Explanation: To be eligible for appointment as the President of India, a person must:

- Be a citizen of India.
- Have completed the age of 35 years.
- Be qualified for election as a member of the Lok Sabha (House of the People).
- Must not hold any office of profit under the Government of India or any state government.
- Therefore, option (A) is incorrect because the minimum age is 35 years, not 32.

13. $7^{6n} - 6^{6n}$, where n is an integer greater than 0, is divisible by:

(A) 127 **(B)** 556 **(C)** 17 **(D)** 23

Ans. Option (A) is correct.

Explanation: $7^{6n} - 6^{6n} = 7^6 - 6^6$ [Here, $n = 1$]

$= (7^3)^2 - (6^3)^2$

$= (7^3 - 6^3)(7^3 + 6^3)$

$= (343 - 216) \times (343 + 216)$

$= 127 \times 559$

$= 127 \times 13 \times 43$

So, it is divisible by 127.

14. What is the value of x for which the points $A(-1, 3)$, $B(2, x)$ and $C(5, -1)$ are collinear?

(A) 0 **(B)** 1 **(C)** –1 **(D)** 2

Ans. Option (B) is correct.

Explanation: Given the points $A(-1, 3)$, $B(2, x)$ and $C(5, -1)$ are collinear.

So, the area of triangle $ABC = 0$

$$\frac{1}{2}\left[x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)\right] = 0$$

$$\frac{1}{2}\left(-1(x+1) + 2(-1-3) + 5(3-x)\right) = 0$$

$$(-x - 1 - 8 + 15 - 5x) = 0$$

$$-6x = -6$$

$$x = 1$$

15. Consider the Arithmetic Progression: 3, 8, 13, 18, ...What is the eighteenth term of the given Arithmetic Progression. Choose the correct answer from the options given below:

(A) 310 **(B)** 88 **(C)** 0 **(D)** 18

Ans. Option (B) is correct.

Explanation: Given A.P. is: 3, 8, 13, 18, …

Here, the first term $(a) = 3$,

Common difference $(d) = 8 - 3 = 5$

So, $a_{18} = a + 17d$

$= 3 + 17(5)$

$= 3 + 85 = 88$

16. Which of the following instruments is used for measuring the relative density of liquids?

(A) Lactometer **(B)** Decimeter
(C) Hydrometer **(D)** Orthometer

Ans. Option (C) is correct.

Explanation: A hydrometer is an instrument used to measure the relative density (specific gravity) of liquids. It works on the principle of buoyancy and indicates how dense a liquid is compared to water. While a lactometer is a type of hydrometer specifically used to test the purity of milk, a decimeter is a unit of length. An orthometer measures the progress of healing of fracture in a quantitative manner.

17. Two mobile phones were purchased at the same price. One was sold at a profit of 20% and the second was sold at a price which was ₹ 1520 less than the price at which the first was sold. If the overall profit earned by selling both the mobile phones was 1% then determine the cost price of one mobile?

(A) ₹ 6000 **(B)** ₹ 4000 **(C)** ₹ 4800 **(D)** ₹ 5200

Ans. Option (B) is correct.

Explanation: Let the cost price of one mobile be ₹ x.

Selling price of first mobile $= x + (20\% \text{ of } x)$

$$= x + \frac{20}{100}x = 1.2x$$

Selling price of second mobile $= 1.2x - 1520$

Total cost price of two mobiles $= x + x = 2x$

Total selling price $= 1.2x + (1.2x - 1520)$

$= 2.4x - 1520$

Given overall profit $= 1\%$

Profit $= 1\%$ of $2x$

$$= \frac{1}{100} \times 2x = 0.02x$$

Also,

Profit = Total selling price – Total cost price

$= (2.4x - 1520) - 2x = 0.4x - 1520$

$0.4x - 1520 = 0.02x$

$0.4x - 0.02x = 1520$

$0.38x = 1520$

$$x = \frac{1520}{0.38} = 4000$$

18. Which state became the first state in the country to attain 100% household electrification?

(A) Andhra Pradesh **(B)** Telangana

(C) Kerala **(D)** Tripura

Ans. Option (C) is correct.

Explanation: Kerala was the first state in India to achieve 100% household electrification, completing this milestone in June 2017. Although Gujarat and Andhra Pradesh had earlier reached 100% village electrification (in 2006 and 2016, respectively), the distinction here is electrifying every household, which Kerala achieved first. Telangana and Tripura achieved full household electrification later, under the central Saubhagya scheme, around 2018 onwards. Therefore, among the given options, Kerala is the correct answer.

19. A man's wage was reduced by 50%. Again, the reduced wage was increased by 50%. Find his loss in terms of percentage.

(A) 10% **(B)** 15% **(C)** 20% **(D)** 25%

Ans. Option (D) is correct.

Explanation: Let original wages = ₹ X

According to question,

$$\text{New wages} = \left(1 - \frac{50}{100}\right)\left(1 + \frac{50}{100}\right)X$$

So, required loss percentage

$$= \frac{X - \frac{1}{2} \times \frac{3}{2} \times X}{X} \times 100$$

$= 25\%$

20. Which of the following is the largest river island in the world?

(A) Andaman and Nicobar

(B) Majuli Island

(C) Lakhsdweep

(D) Indus

Ans. Option (B) is correct.

Explanation: Majuli Island, located in the Brahmaputra River in Assam, India, is recognised as the largest river island in the world. It has been listed in the Guinness Book of World Records for this distinction. Majuli is known for its unique culture, Vaishnavite monasteries (Satras), and environmental significance.

21. In how many different ways can the letters of the world 'RUMOUR' be arranged?

(A) 720 **(B)** 180 **(C)** 45 **(D)** 30

Ans. Option (B) is correct.

Explanation: Total number of letters = 6

Here, R appears 2 times; U appears 2 times; M and O appear once each.

$$\text{Total arrangements} = \frac{6!}{2! \times 2!}$$

$$= \frac{720}{2 \times 2}$$

$$= \frac{720}{4} = 180$$

22. Amit is walking at a speed of 10 km/h. After every kilometre, he takes a rest for 5 min. What is the time taken to cover a distance of 5 km by Amit?

(A) 55 min **(B)** 50 min

(C) 45 min **(D)** 40 min

Ans. Option (B) is correct.

Explanation: Time to walk 1 km $= \frac{1}{10}$ h $= 6$ min

So, walking 5 km $= 5 \times 6 = 30$ min

Amit takes rest after every 1 km, but not after the last 1 km.

Total rest intervals $= 4$

Total rest time $= 4 \times 5 = 20$ min

Total time $= 30 + 20$

$= 50$ min

23. The ratio of the rate of flow of water through pipes varies inversely, as the square of the radius of the pipes. What is the ratio of the rates of flow in two pipes of diameter 2 cm and 4 cm?

(A) 1:8 **(B)** 1:2 **(C)** 2:1 **(D)** 4:1

Ans. Option (D) is correct.

Explanation: Let R_1 and R_2 be the rates for radii $r_1 = 1$ cm and $r_2 = 2$ cm.

Since, Rate of flow (R) $\propto \frac{1}{r^2}$

So, required ratio $= \frac{R_1}{R_2} = \left(\frac{r_2}{r_1}\right)^2 = \left(\frac{2}{1}\right)^2 = 4:1$

24. Read the following information carefully & answer the question given below:

(i) 'P + Q' means 'P' is mother of 'Q'.
(ii) 'P – Q' means 'Q' is sister of 'P'
(iii) 'P × Q' means 'P' is the brother of 'Q'.
(iv) 'P ÷ Q' means 'P' is the father of 'Q'
Which of the following means R is nephew of T?

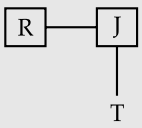
(1) R × J ÷ T
(2) R × T ÷ J × K
(3) R – M + T – J
(4) R – M × J ÷ T

Choose the correct answer from the options given below:

(A) Only (1) **(B)** Only (2)
(C) Only (3) **(D)** (2) and (3)

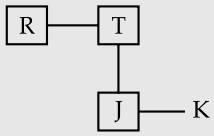
Ans. Option (Bonus) is correct.

Explanation: (1)



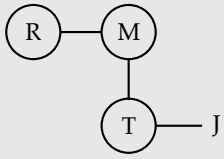
So, R is uncle of T.

(2)



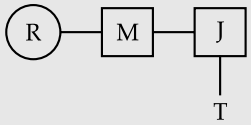
So, R is the brother of T.

(3)



So, R is the aunt of T.

(4)



So, T is the nephew of R.
So, none of the options (A), (B), (C), or (D) correctly mean "R is nephew of T". The correct statement is: T × S ÷ R OR T – S ÷ R

25. If the mean of five observations $x + 1$, $x + 2$, $x + 3$, $x + 4$ and $x + 5$ is 15, then what is the mean of the first three observations?

(A) 15 **(B)** 14 **(C)** 13 **(D)** 12

Ans. Option (B) is correct.

Explanation: Mean

$$= \frac{x+1+x+2+x+3+x+4+x+5}{5}$$

$$15 = \frac{5x+15}{5} = x+3$$

$$x = 12$$

So, required mean $= \frac{13+14+15}{3}$

$$= \frac{42}{3} = 14$$

26. Identify the Odd One Out:

(A) Tapti River **(B)** Mandovi River
(C) Mahanadi River **(D)** Narmada River

Ans. Option (C) is correct.

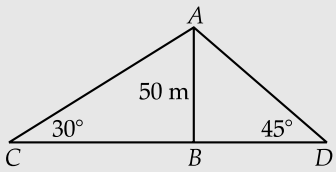
Explanation: Among the given rivers, Tapti, Narmada and Mandovi all flow westward into the Arabian Sea, which is rare for Indian rivers. In contrast, the Mahanadi River flows eastward and drains into the Bay of Bengal. Most major Indian rivers flow eastward, but westward-flowing rivers are the exceptions. Therefore, Mahanadi is the odd one out based on its direction of flow and drainage pattern.

27. Two men are on opposite side of a tower. They measure the angles of elevation of the top of the tower as 30° and 45°, respectively. If the height of the tower is 50 m find distance between the two men.

(A) 136.6 m **(B)** 13.6 m **(C)** 27.3 m **(D)** 54.6 m

Ans. Option (A) is correct.

Explanation:



$$\tan 30° = \frac{50}{BC}$$

$$\frac{1}{\sqrt{3}} = \frac{50}{BC}$$

$$BC = 50\sqrt{3} \text{ m}$$

$$\tan 45° = \frac{50}{BD}$$

$$1 = \frac{50}{BD}$$

$$BD = 50 \text{ m}$$

Distance between the two men $= BC + BD$

$$= 50\sqrt{3} + 50$$

$$= 136.6 \text{ m}$$

28. A drainage tile is a cylinder shell of 21 cm long. The inside and outside diameters are 4.5 cm and 5.1 cm, respectively. What is the volume of clay required for making a tile?

(A) 30.24 π cm^3 **(B)** 5.76 π cm^3
(C) 6.76 π cm^3 **(D)** 6.96 π cm^3

Ans. Option (A) is correct.

Explanation: Volume of cylindrical shell

$$= \pi h(R^2 - r^2)$$
$$= \pi \times 21 \times (2.55^2 - 2.25^2)$$
$$= \pi \times 21 \times (6.5025 - 5.0625)$$
$$= \pi \times 21 \times (1.44)$$
$$= 30.24\ \pi \text{ cm}^3$$

29. The Association of South-East Asian Nations [ASEAN] was established in which of the following years?

(A) 1967 **(B)** 1971 **(C)** 1984 **(D)** 2003

Ans. Option (A) is correct.

Explanation: The Association of South-East Asian Nations (ASEAN) was established on 8 August 1967 with the signing of the Bangkok Declaration (also known as the ASEAN Declaration). The founding members were Indonesia, Malaysia, Philippines, Singapore and Thailand. The main aim was to promote political and economic cooperation and regional stability among the member states.

30. Consider the surface area of the following:

(1) A cube having each side as 6 cm.

(2) A cylinder with a diameter of base 14 cm and length 80 cm.

(3) A cone of diameter 14 cm and a slant height of 10 cm.

(4) A sphere of radius 10.5 cm.

The surface area of these in decreasing order are:

Choose the correct answer from the options given below:

(A) (2), (4), (3), (1) **(B)** (4), (3), (1), (2)

(C) (3), (1), (4), (2) **(D)** (4), (2), (1), (3)

Ans. Option (A) is correct.

Explanation: Surface area of cube

$= 6 \times 6^2 = 216 \text{ cm}^3$

Radius of cylinder = 7 cm, height = 80 cm.

Total surface area of cylinder

$= 2\pi r(r + h)$

$= 2 \times \frac{22}{7} \times 7(87)$

$= 3828 \text{ cm}^3$

Radius of cone = 7 cm; slant height = 10 cm.

Total surface area of cone

$= \pi r(l + r)$

$= \frac{22}{7} \times 7 \times 17$

$= 374 \text{ cm}^3$

Surface area of sphere $= 4\pi r^2$

$= 4 \times \frac{22}{7} \times 10.5^2$

$= 1386 \text{ cm}^3$

So, the correct descending order is: (2), (4), (3), (1)

31. P and Q can do work separately in 10 and 20 days, respectively. In how many days can they finish it working together?

(A) $\frac{23}{4}$ **(B)** $\frac{20}{3}$ **(C)** 20 **(D)** 3

Ans. Option (B) is correct.

Explanation: Required time $= \frac{1}{\frac{1}{10} + \frac{1}{20}} = \frac{1}{\frac{2+1}{20}}$

$= \frac{20}{3}$ days

32. Which of the following events changed the heart of Emperor Ashoka to choose the path of spirituality and peace?

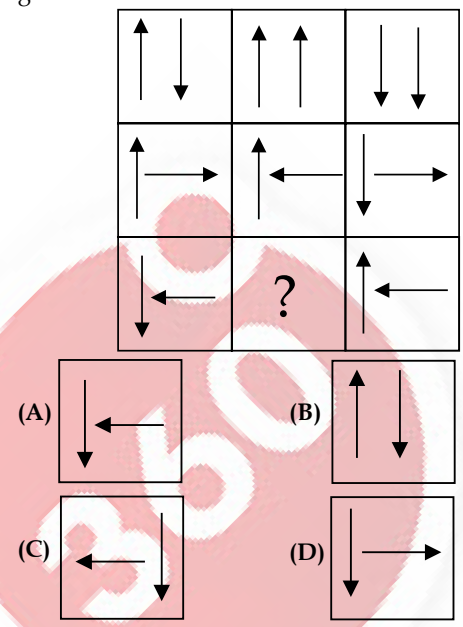
(A) The Takshila Battle **(B)** The Kalinga War

(C) The Buxar War **(D)** The Battle of Ujjain

Ans. Option (B) is correct.

Explanation: The Kalinga War, fought around 261 BCE, was a turning point in the life of Emperor Ashoka. Deeply moved by the immense bloodshed and suffering caused by the war, Ashoka experienced profound remorse. This emotional transformation led him to renounce violence and adopt the path of Buddhism, peace and dharma (righteousness).

33. Find out which of the answer figures completes the given matrix.



Ans. Option (D) is correct.

Explanation: In each row, right arrow flipped to get second figure. Also, the third figure is obtained on flipping the whole second figure.

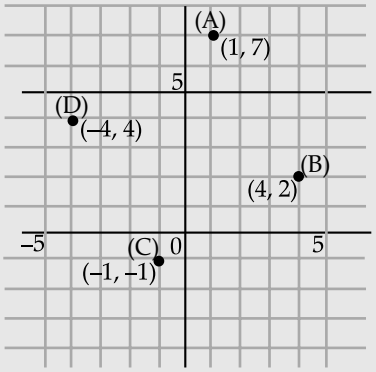
34. If the points (1, 7), (4, 2), (–1, –1) and (–4, 4) are the vertices of a square then what is the length of the diagonal of square?

(A) 68 units **(B)** $\sqrt{68}$ units

(C) 34 units **(D)** $\sqrt{34}$ units

Ans. Option (B) is correct.

Explanation: Let the points be $A(1, 7)$, $B(4, 2)$, $C(-1, -1)$, $D(-4, 4)$



$AC = \sqrt{2^2 + 8^2} = \sqrt{68}$ units

35. There are 48 students in a college gathering. The ratio of the number of boys to the number of girls in the gathering is 5:3. If the ratio of the boys to girls has to be made 6:5 then how many girls need to be added to the gathering without changing the numbers of boys who are attending the gathering?

(A) 17 **(B)** 12 **(C)** 7 **(D)** 6

Ans. Option (C) is correct.

Explanation: Number of students = 48
Ratio of boys to girls = 5:3
So, we have,

$$5x + 3x = 48$$
$$8x = 48$$
$$x = 6$$

Hence, number of boys = 30 and
number of girls = 18
Let the number of girls be added = g
So, according to question,

$$\frac{30}{18+g} = \frac{6}{5}$$
$$150 = 108 + 6g$$
$$42 = 6g$$
$$g = 7$$

36. The difference between cost price (CP) and selling price (SP) of an article is ₹ 240. If the profit is 20%, then the selling price is

(A) 1400 **(B)** 1440 **(C)** 1200 **(D)** 1240

Ans. Option (B) is correct.

Explanation: Let the SP of an article = ₹ X
As, SP – CP = ₹ 240
CP = ₹ $(X - 240)$
Now,

$$\text{Profit \%} = \frac{\text{SP} - \text{CP}}{\text{CP}} \times 100$$
$$20 = \frac{240}{X - 240} \times 100$$
$$\frac{1}{5} = \frac{240}{X - 240}$$
$$X - 240 = 1200$$
$$X = ₹\ 1440$$

37. Which one of the following is/are correct?

(1) Every irrational number is a real number.
(2) Every real number is an irrational number.
(3) The sum or difference of a rational number and an irrational number is an irrational number.
(4) The product or quotient of a non-zero rational number with an irrational number is an irrational number.

Choose the correct answer from the options given below:

(A) (1), (2) and (4) only
(B) (4), (2) and (3) only
(C) (1), (3) and (4) only
(D) (1) and (4) only

Ans. Option (C) is correct.

Explanation: (1) Correct
(2) Incorrect, 5 is not an irrational number.
(3) Correct
(4) Correct

38. Five persons are standing in a straight line and facing in the same direction. At one of the extreme end, there is a Doctor and at the other extreme end, there is a Lawyer. A Marketing Officer is standing to the right of a girl. An Author is to the left of the Lawyer. The girl is standing between the Doctor & the Marketing Officer. Counting from the left, determine that the Marketing Officer is at which place if the group?

(A) Fourth **(B)** First **(C)** Second **(D)** Third

Ans. Option (D) is correct.

Explanation:

So, the Marketing Officer is at third position from the left.

39. The area of a rectangle whose length is 5 more than twice its width is 75 square unit. What is the perimeter of the rectangle.

(A) 20 units **(B)** 30 units **(C)** 40 units **(D)** 50 units

Ans. Option (C) is correct.

Explanation: Let the width of rectangle be x unit, then its length is $2x + 5$ units.
According to question, we have

$$\text{Length} \times \text{width} = \text{Area of rectangle}$$
$$(2x + 5) \times x = 75$$
$$2x^2 + 5x - 75 = 0$$
$$x = \frac{-5 \pm \sqrt{25 + 600}}{4}$$
$$= \frac{-5 \pm 25}{4}$$
$$= -\frac{30}{4}; 5$$

So, width = 5 units and length = 15 units.
Hence, perimeter of rectangle = 2(length + width) = 2(15 + 5) = 40 units.

40. The Government of India launched a new scheme to separate agriculture and non-agricultural feeders for judicious restoring of supply to agriculture and non-agricultural consumers in rural areas. The scheme's name is:

(A) Transmission and Distribution Plan
(B) Deendayal Upadhyaya Gram Jyoti Yojana
(C) Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan
(D) Ujwal DISCOM Assurance Yojna

Ans. Option (B) is correct.

Explanation: The Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY), launched in November 2014, aims to ensure uninterrupted power supply across rural India. This scheme replaces the earlier Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY). A key feature of DDUGJY is the separation of agricultural and non-agricultural feeders, allowing for the efficient and balanced distribution of electricity to both

agricultural and non-agricultural consumers in rural areas. It also focuses on strengthening the rural electrification infrastructure.

41. A basket contains 4 red, 5 blue and 3 green marbles. If three marbles are picked up at random, what is the probability that at least one is blue?

(A) $\frac{37}{44}$ **(B)** $\frac{7}{44}$

(C) $\frac{7}{12}$ **(D)** $\frac{5}{12}$

Ans. Option (A) is correct.

Explanation: Total number of marbles in the basket = 4 + 5 + 3 = 12

Probability of getting at least one marble is blue

$$= \frac{{}^5C_1 \times {}^7C_2 + {}^5C_2 \times {}^7C_1 + {}^5C_3 \times {}^7C_0}{{}^{12}C_3}$$

$$= \frac{105 + 70 + 10}{220} = \frac{185}{220} = \frac{37}{44}$$

42. Which of the following were important changes that were introduced by the British after the revolt of 1857?

(1) The British Government accepted direct responsibility for ruling India.

(2) It was decided that all the territories of Indian rulers would be annexed immediately.

(3) The proportion of Indian soldiers in the army would be reduced and European soldiers would be increased.

(4) Landlords and zamindars were given protection to secure their land.

Choose the correct answer from the options given below:

(A) (1), (2) and (4) only **(B)** (1), (3) and (4) only

(C) (2), (3) and (4) only **(D)** (1), (2), (3) and (4)

Ans. Option (B) is correct.

Explanation: After the Revolt of 1857, the British introduced major changes in governance:

- The British government took over the administration of India from the East India Company. This was announced in Allahabad on 1st November 1858, known as the Queen's Proclamation.
- The proportion of Indian soldiers was reduced, and European soldiers were increased to prevent future rebellions.
- The governor-general of India was given the new title of Viceroy, who would represent the British Queen in India. Lord Canning became the first Viceroy of India.
- The Viceroy was given a council of four members to help him in his work.
- A Secretary of State was appointed in London to look after Indian affairs.
- Landlords and zamindars were given protection to secure their loyalty.
- However, (2) is incorrect because the British stopped the policy of annexation post-1857 and assured princely states of their rule. Thus, the correct answer is (1), (3) and (4) only.

43. Match List-I with List-II:

List-I (Shapes)		**List-II** (Area/Perimeter/Diagonal/Slant height)	
(1)	Trapezium	(I)	$\sqrt{l^2 + b^2 + h^2}$
(2)	Sector of a circle	(II)	$\sqrt{h^2 + (R - r)^2}$
(3)	Cuboid	(III)	$\frac{1}{2}h(a + b)$
(4)	Frustum of Cone	(IV)	$\left(\frac{\theta}{360^\circ}\right) \times 2\pi r$

Choose the correct answer from the options given below:

(A) (1)-(I), (2)-(IV), (3)-(III), (4)-(II)
(B) (1)-(II), (2)-(III), (3)-(IV), (4)-(I)
(C) (1)-(III), (2)-(IV), (3)-(I), (4)-(II)
(D) (1)-(IV), (2)-(I), (3)-(II), (4)-(III)

Ans. Option (C) is correct.

Explanation:

(1) Area of trapezium $= \frac{1}{2}(a + b)h$

(2) Arc length of sector of circle $= \frac{\theta}{360^\circ} \times 2\pi r$

(3) Diagonal of cuboid $= \sqrt{l^2 + b^2 + h^2}$

(4) Slant height of frustum of cone $= \sqrt{h^2 + (R - r)^2}$

So, (1)-(III); (2)-(IV); (3)-(I); (4)-(II)

44. The State of Chhattisgarh does not share its border with which of the following State of India?

(A) Uttar Pradesh **(B)** Madhya Pradesh

(C) Assam **(D)** Andhra Pradesh

Ans. Option (C) is correct.

Explanation: Chhattisgarh is a central Indian state that shares its borders with seven states: Madhya Pradesh, Maharashtra, Telangana, Andhra Pradesh, Odisha, Jharkhand and Uttar Pradesh. It does not share any border with Assam, which is located in the northeastern part of India.

45. Which of the following space missions launched by India in 2024 aims to resolve the mysteries of the Sun?

(A) EOS-08
(B) INSAT-3DS-GSLV-F14
(C) ADITYA-L1
(D) RLV LEX-03

Ans. Option (C) is correct.

Explanation: The Indian space mission launched to resolve the mysteries of the Sun is ADITYA-L1. While Aditya-L1 was launched in September 2023, it successfully reached its intended halo orbit around the Sun–Earth Lagrange Point 1 (L1) in January 2024, and its scientific instruments became fully operational in the early months of 2024, enabling it to begin its primary mission of studying the Sun. Therefore, it's very much a mission actively working to actively unravel solar mysteries in 2024.

The other options are:

- **EOS-08:** This is an Earth Observation Satellite, launched for purposes like disaster monitoring and environmental surveillance.
- **INSAT-3DS-GSLV-F14:** This refers to the launch of INSAT-3DS, a meteorological satellite for advanced weather monitoring and disaster management.
- **RLV LEX-03:** This is likely related to ISRO's Reusable Launch Vehicle (RLV) program, focused on technology demonstration for future reusable launch capabilities, not directly for solar studies.

46. Read the information given below carefully and answer the question that follows:

All the six members of a family A, B, C, D, E and F are travelling together. B is the son of C but C is not the mother of B. A and C are a married couple. E is the brother of C. D is the daughter of A. F is the brother of B.

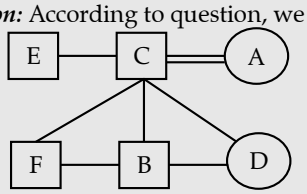
List-I	List-II
(1) The number of male members in the family	(I) 3
(2) Mother of B	(II) E
(3) Number of Children of A	(III) 4
(4) Uncle of F	(IV) A

Choose the correct answer from the options given below:

(A) (1)-(I), (2)-(II), (3)-(III), (4)-(IV)
(B) (1)-(III), (2)-(IV), (3)-(II), (4)-(I)
(C) (1)-(IV), (2)-(I), (3)-(III), (4)-(II)
(D) (1)-(III), (2)-(IV), (3)-(I), (4)-(II)

Ans. Option (D) is correct.

Explanation: According to question, we have



(A) Number of male members = 4
(B) A is the mother of B.
(C) Number of children of A = 3
(D) E is the uncle of F.
So, (1)-(III); (2)-(IV); (3)-(I); (4)-(II)

47. Match List-I with List-II:

List-I (Event)	List-II (Year in which Launched)
(1) Air Quality Index	(I) 2010
(2) Ganga Action Plan	(II) 2014
(3) Nation Green Tribunal	(III) 1985
(4) Lifestyle for Environment Movement	(IV) 2022

Choose the correct answer from the options given below:

(A) (1)-(II), (2)-(III), (3)-(IV), (4)-(I)
(B) (1)-(II), (2)-(I), (3)-(III), (4)-(IV)
(C) (1)-(II), (2)-(III), (3)-(I), (4)-(IV)
(D) (1)-(III), (2)-(II), (3)-(I), (4)-(IV)

Ans. Option (C) is correct.

Explanation: Let's match the events in List-I with their respective launch years in List-II:

(1) The National Air Quality Index (AQI) in India was launched on 17 September 2014. So, (1) matches with (II).

(2) The Ganga Action Plan was launched in 1985 by then Prime Minister Rajiv Gandhi. So, (2) matches with (III).

(3) The National Green Tribunal was established on 18, October 2010, under the National Green Tribunal Act 2010. So, (3) matches with (I).

(4) Lifestyle for Environment (LiFE) movement was launched by Prime Minister Narendra Modi on 5, June 2022, on World Environment Day. So, (4) matches with (IV).

48. Gugaal is playing with an ordinary dice and gets the number 2 on the face of the dice. What shall be the number on the side that lies exactly opposite to the face of the dice with which Gugaal is playing?

(A) 3 **(B)** 5 **(C)** 4 **(D)** 1

Ans. Option (B) is correct.

Explanation: The sum of numbers on opposite faces of an ordinary dice is always 7, so the number opposite to 2 is 5.

49. Match List-I with List-II:

List-I (Country)	List-II (Name of Parliament)
(1) Spain	(I) Folketing
(2) Denmark	(II) Mili Shora
(3) Australia	(III) Cortes Generales
(4) Afghanistan	(IV) Federal Parliament

Choose the correct answer from the options given below:

(A) (1)-(I), (2)-(II), (3)-(III), (4)-(IV)
(B) (1)-(III), (2)-(I), (3)-(IV), (4)-(II)

(C) (1)-(II), (2)-(III), (3)-(I), (4)-(IV)
(D) (1)-(III), (2)-(IV), (3)-(I), (4)-(II)

Ans. Option (B) is correct.

Explanation: Let's match the countries in List-I with the names of their Parliaments in List-II:
(A) Spain: The Parliament of Spain is called Cortes Generales. So, (1) matches with (III).
(B) Denmark: The Parliament of Denmark is called the Folketing. So, (2) matches with (I).
(C) Australia: The Parliament of Australia is called the Federal Parliament. So, (3) matches with (IV).
(D) Afghanistan: The Parliament of Afghanistan is called Mili Shura. So, (4) matches with (II).

50. Which of the following statements are correct about Economic Survey 2023–2024?
(1) Government spending has seen a declining trend since 2015–2016.
(2) India's target is to become a developed economy by the year 2047.
(3) Fiscal deficit was reduced in the year 2023.
(4) Inflation in the year was at the lowest level since the COVID-19 pandemic period.
Choose the correct answer from the options given below:
(A) (1), (2) and (4) only
(B) (1), (3) and (4) only
(C) (1), (2), (3) and (4)
(D) (2), (3) and (4) only

Ans. Option (D) is correct.

Explanation:
(1) The Economic Survey 2023–24 generally highlights an increase in government capital expenditure and overall welfare expenditure. For instance, welfare expenditure has grown at a CAGR of 12.8% between FY18 and FY24.
(2) The vision of 'Viksit Bharat by 2047' (Developed India by 2047) is a key policy goal frequently reiterated in official documents, including the Economic Survey. India, too, has now set for itself the goal of becoming a developed nation within a generation by 2047, the hundredth year of independence.
(3) Fiscal deficit in 2023-24 is targeted at 5.9% of GDP, lower than the revised fiscal deficit of 6.4% in 2022-23.
(4) The Economic Survey 2023–24 stated that retail inflation (CPI headline inflation) in FY 2023–24 was 5.4%, which was indeed the 'lowest level since the COVID-19 pandemic'.
Based on this analysis, statements (2), (3) and (4) are correct. The final answer is Option (D).

◆◆◆