

UPSC **CIVIL SERVICES EXAMINATION** (PRELIMS) 2025

QUANTITATIVE APTITUDE

- A natural number N is such that it can be expressed as 1. N = p + q + r, where p, q and r are distinct factors of N. How many numbers below 50 have this property? **(b)** 7 **(a)** 6
 - (d) 9 (c) 8
- Three prime numbers p, q and r, each less than 20, are 2. such that p - q = q - r. How many distinct possible values can we get for (p + q + r)? (a) 4 **(b)** 5
 - (d) More than 6 (c) 6
- How many possible values of (p + q + r) are there 3. satisfying $\frac{1}{p} + \frac{1}{q} + \frac{1}{r} = 1$, where p, q and r are natural

numbers (not necessarily distinct)?

(a)	None	(b)	One	

(c) Three (d) More than three

4. Team X scored a total of N runs in 20 overs. Team Y tied the score in 10% less overs. Had team Y's average run rate (runs per over) been 50% higher, the scores would have been tied in 12 overs. How many runs were scored by team X? (a) 72 (h) 144

(a)	12	(D) 144
(c)	216	(d) Cannot be determined

The price (p) of a commodity is first increased by k%; 5. then decreased by k%; again increased by k%; and again decreased by k%. If the new price is q, then what is the relation between p and q? 104 (104 1-2)2

(a)
$$p(10^{4} - k^{2}) = q \times 10^{4}$$
 (b) $p(10^{4} - k^{2}) = q \times 10^{4}$
(c) $p(10^{4} - k^{2}) = q \times 10^{4}$ (d) $p(10^{4} - k^{2}) = q \times 10^{8}$

The petrol price shot up by 10% as a result of the hike in crude oil prices. The price of petrol before the hike was ` 90 per litre. A person travels 2200 km every month and his car gives a mileage of 16 km per litre. By how many km. should he reduce his travel if he wants to maintain his expenditure at the previous level? (a) 1001(h) 2001

(a)	160 KIII	(0)	200 KIII
(c)	220 km	(d)	240 km

7. A 4-digit number N is such that when divided by 3, 5, 6, 9 leaves a remainder 1, 3, 4, 7 respectively. What is the nallest value of N2

SIIIa	mest value of IN.		
(a)	1068	(b)	1072
(c)	1078	(d)	1082

8. What is the unit digit in the multiplication of $1 \times 3 \times 5 \times 7 \times 9 \times ... \times 999?$ **(a)** 1 (h) 3

(a)	1	(0)	5
(c)	5	(d)	9

- 9. Consider the first 100 natural numbers. How many of them are not divisible by any one of 2, 3, 5, 7 and 9? (a) 20 **(b)** 21
 - (d) 23 (c) 22
- 10. If $4 \le x \le 8$ and $2 \le y \le 7$, then what is the ratio of maximum value of (x + y) to minimum value of (x - y)?

(a) 6
(c)
$$-^{15}$$

2

(c)

- (b) $\frac{15}{2}$ (d) None of the above
- 11. Let both p and k be prime numbers such that (p2 + k) is also a prime number less than 30. What is the number of possible values of k?

- 12. There are n sets of numbers each having only three positive integers with LCM equal to 1001 and HCF equal to 1. What is the value of n?
 - (a) 6 **(b)** 7
 - (d) More than 8 (c) 8
- 13. Let PQR be a 3-digit number, PPT be a 3-digit number and PS be a 2-digit number, where P, Q, R, S, T are distinct non-zero digits. Further, PQR - PS = PPT. If Q = 3 and T < 6, then what is the number of possible values of (R, S)?
 - (a) 2 **(b)** 3 (c) 4 (d) More than 45

14. What is the maximum value of n such that

7 × 343 × 385 × 1000 × 2401 × 77777 is divisible by 35n?

- (a) 3 **(b)** 4 (c) 5 (d) 7
- 15. A tram overtakes 2 persons X and Y walking at an average speed of 3 km/hr and 4 km/hr in the same direction and completely passes them in 8 seconds and 9 seconds respectively. What is the length of the tram? (a) 15 m **(b)** 18 m
 - (c) 20 m (d) 24 m
- 16. If N2 = 12345678987654321, then how many digits does the number N have?
 - (a) 8 (b) 9
 - (c) 10 (d) 11
- 17. A set (X) of 20 pipes can fill 70% of a tank in 14 minutes. Another set (Y) of 10 pipes fills 3/8th of the tank in 6 minutes. A third set (Z) of 16 pipes can empty half of the tank in 20 minutes. If half of the pipes of set X are closed and only half of the pipes of set Y are open, and

all pipes of the set (Z) are open, then how long will it take to fill 50% of the tank?

(a)	8 minutes	(b) 10 minute	S
()	10	(1) 1(1)	

(C)	12 minutes	(d)	16 minutes

18. If n is a natural number, then what is the number of distinct remainders of (1n + 2n) when divided by 4?

(a)	0	(b) 1	
(c)	2	(d) 3	

19. Let P= QQQ be a 3-digit number. What is the HCF of P and 481?

(a)	1	(b)	13
(c)	37	(d)	481

20. X can complete one-third of a certain work in 6 days, Y can complete one-third of the same work in 8 days and Z can complete three-fourth of the same work in 12 days. All of them work together for n days and then X and Z quit and Y alone finishes the remaining work

in $8\frac{2}{2}$ days. What is n equal to?

	5	
(a)	3	(b) 4
(c)	5	(d) 6

- 21. Consider the following statements:
 - I. There exists a natural number which when increased by 50% can have its number of factors unchanged.
 - II. There exists a natural number which when increased by 150% can have its number of factors unchanged.
 - Which of the statements given above is/are correct?

(a) I only			(b) II only	
< \ \	D 1 7	1 **	(N) N T (1) T ()	••

er I nor II
2

22. What is the remainder when 93 + 94 + 95 + 96 +...+ 9100 is divided by 6?

(a)	0	(b) 1
(c)	2	(d) 3

23. A question is given followed by Statements I and II. Consider the Question and the Statements and mark the correct option.

Ouestion:

What is the smallest 1-digit number having exactly 4 distinct factors?

Statement I: 2 is one of the factors.

Statement II: 3 is one of the factors.

Which one of the following is correct in respect of the above Question and the Statements?

- (a) The Question can be answered by using one of the Statements alone, but cannot be answered using the other statement alone.
- (b) The Question can be answered by using either Statement alone.
- (c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone.
- (d) The Question can be answered even without using any of the Statements.
- 24. A question is given followed by two Statements I and II. Consider the Question and the Statements and mark the correct option.

Question:

Is (p+q)2 - 4 pq, where p, q are natural numbers, positive?

Statement I: p < q.

Statement II: p > q.

Which one of the following is correct in respect of the above Question and the Statements?

- (a) The Question can be answered by using one of the Statements alone, but cannot be answered using the other statement alone.
- (b) The Question can be answered by using either Statement alone.
- (c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone.
- (d) The Question can be answered even without using any of the Statements.
- 25. In a T20 cricket match, three players X, Y and Z scored a total of 37 runs. The ratio of number of runs scored by X to the number of runs scored by Y is equal to ratio of number of runs scored by Y to number of runs scored by Z.

Value-I = Runs scored by X

- Value-II = Runs scored by Y
- Value-III = Runs scored by Z
- Which one of the following is correct?
- (a) Value-I < Value-II < Value-III
- (b) Value-III < Value-II < Value-I
- (c) Value-I < Value-III < Value-II
- (d) Cannot be determined due to insufficient data
- 26. Let p + q = 10, where p, q are integers. Value-I = Maximum value of $p \times q$ when p, q are positive integers.

Value-II = Maximum value of $p \times q$ when $p \ge -6$, $q \ge$ -4.

Which one of the following is correct?

- (a) Value-I < Value-II
- (b) Value-II < Value-I
- (c) Value-I = Value-II
- (d) Cannot be determined due to insufficient data
- Consider a set of 11 numbers: 27.

Value-I = Minimum value of the average of the numbers of the set when they are consecutive integers ≥-5.

Value-II = Minimum value of the product of the numbers of the set when they are consecutive nonnegative integers.

Which one of the following is correct?

- (a) Value-I < Value-II
- (b) Value-II < Value-I
- (c) Value-I = Value-II
- (d) Cannot be determined due to insufficient data
- 28. The average of three numbers p, q and r is k. p is as much more than the average as q is less than the average. What is the value of r?
 - (a) k (b) k – 1 (d) k/2 (c) k+1
- 29. Let x be a real number between 0 and 1. Which of the following statements is/are correct? I. $x^2 > x^3$.

 - II. $x > \sqrt{x}$.

Select the correct answer using the code given below:

- (a) I only (b) II only
- (c) Both I and II (d) Neither I nor II
- 30. The difference between any two natural numbers is 10. What can be said about the natural numbers which are divisible by 5 and lie between these two numbers?
 - (a) There is only one such number.
 - (b) There are only two such numbers.
 - (c) There can be more than one such number.
 - (d) No such number exists.

LOGICAL REASONING AND ANALYTICAL ABILITY

- 31. What comes at X and Y respectively in the following sequence? January, January, December, October, X, March, October, Y, September

 (a) July, May
 (b) July, April
 - (c) June, May (d) June, April
- 32. A solid cube is painted yellow on all its faces. The cube is then cut into 60 smaller but equal pieces by making the minimum number of cuts. Which of the following statements is/are correct?
 - I. The minimum number of cuts is 9.
 - **II.** The number of smaller pieces which are not painted on any face is 6.

Select the correct answer using the code given below:

- (a) I only (b) II only
- (c) Both I and II (d) Neither I nor II
- 33. If 7 * 24 = 25 and 12 * 16 = 20, then what is 16* 63 equal to ?

(a)	/0	(b)	66
(c)	65	(d)	64

- 34. Consider the following statements:
 - I. If $A \le B > C \le D > E > F \ge G = H$; then B is always greater than E.
 - II. If $P > Q=R \ge S=T \le U=V > W$; then S is always less than V.

Which of the statements given above is/are correct?

- (c) Both I and II (d) Neither I nor II
- 35. Consider the sequence AB_CC_A_BCCC_BBC_C that follows a certain pattern. Which one of the following completes the sequence?

(a)	B, C, B, C, A	(b) A, C, B, C, A
(c)	B, C, B, A, C	(d) C, B, B, A, C

36.	What is X in the sequence		
	24, X, 12, 18, 36, 90?		
	(a) 18	(b)	12
	(c) 9	(d)	6

37. P and Q walk along a circular track. They start at 5:00 a.m. from the same point in opposite directions. P walks at an average speed of 5 rounds per hour and Q walks at an average speed of 3 rounds per hour. How many times will they cross each other between 5:20 a.m. and 7:00 a.m.?

(a)	12	(b)	13
(c)	14	(d)	15

- 38. If P = +, Q = -, $R = \times$, $S = \div$, then insert the proper notations between the successive numbers in the equation $60_{15_{320_{4}}} = 20$:
 - (a) SPRQ(b) QRPS(c) QRSP(d) SPQR
- **39.** What is the 489th digit in the number 123456789101112...? (a) 0 (b) 3
 - (c) 6 (d) 9
- 40. A mobile phone has been stolen. There are 3 suspects P, Q and R. They were questioned knowing that only one of them is guilty. Their responses are as follows:
 P: I did not steal. Q stole it.
 Q: R did not steal. I did not steal.
 R: I did not steal. I do not know who did it.
 Who stole the mobile phone?
 (a) P
 (b) Q
 - (c) R (d) Cannot be concluded
- 41. Three teams P, Q, R participated in a tournament in which the teams play with one another exactly once. A win fetches a team 2 points and a draw 1 point. A team gets no point for a loss. Each team scored exactly one goal in the tournament. The team P got 3 points, Q got 2 points and R got 1 point. Which of the following statements is/are correct?
 - **I.** The result of the match between P and Q is a draw with the score 0-0.
 - **II.** The number of goals scored by R against Q is 1.
 - Which of the statements given above is/are correct?
 - (a) I only (b) II only
 - (c) Both I and II (d) Neither I nor II
- 42. P is the brother of Q and R. S is R's mother. T is P's father. How many of the following statements are definitely true?
 - I. S and T are a couple. II. Q is T's son.
 - **III.** T is Q's father. **IV.** S is P's mother.
 - V. R is T's daughter. VI. P is S's son.
 - Select the correct answer using the code given below:
 - (a) Only two (b) Only three
 - (c) Only four (d) Only five
- 43. If NO is coded as 210, NOT is coded as 4200 and NOTE is coded as 21000, then how is NOTES coded?
 (a) 399000
 (b) 420000
 (c) 440000
 (d) 630000
- 44. If FRANCE is coded as 654321 and GERMANY is coded as 9158437, then how is YEMEN coded?
 (a) 54321
 (b) 81913
 (c) 71913
 (d) 71813
- 45. The 5-digit number PQRST (all distinct digits) is such that T ≠ 0. P is thrice T. S is greater than Q by 4, while Q is greater than R by 3. How many such 5-digit numbers are possible?
 - (a) 3 (b) 4
 - (c) 5 (d) 6
- 46. What is X in the sequence
 - 1, 3, 6, 11, 18, X, 42?
 - (a) 26 (b) 27 (c) 29 (d) 30

47. There are 7 places A, B, C, D, E, F and G in a city connected by various roads AB, AC, CD, DE, BF, EG and FG. A is 6 km south of B. A is 10 km west of C. D is 5 km east of E. C is 6 km north of D. F is 9 km west of B. F is 12 km north of G. A person travels from D to F through these roads. What is the distance covered by the person?

(a) 20 km	(b) 25 km
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(c) 31 km	(d)	37	km
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- 48. In a certain code if 64 is written as 343 and 216 is written as 729, then how is 512 written in that code?
 (a) 1000
 (b) 1331
 - (c) 1728 (d) 2197
- 49. A question is given followed by two Statements I and II. Consider the Question and the Statements and mark the correct option.

Question:

Let P, Q, R, S be distinct non-zero digits. If PP x PQ = RRSS, where $P \le 3$ and $Q \le 4$, then what is Q equal to ? Statement I: R = 1.

Statement II: S = 2.

Which one of the following is correct in respect of the above Question and the Statements?

- (a) The Question can be answered by using one of the Statements alone, but cannot be answered using the other statement alone.
- (b) The Question can be answered by using either Statement alone.
- (c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone.
- (d) The Question can be answered even without using any of the Statements.
- 50. A question is given followed by two Statements I and II. Consider the Question and the Statements and mark the correct option.

Question:

How is Q related to P?

Statement I: P has two sisters, R and S.

Statement II: R's father is the brother of Q.

Which one of the following is correct in respect of the above Question and the Statements?

- (a) The Question can be answered by using one of the Statements alone, but cannot be answered using the other statement alone.
- (b) The Question can be answered by using either Statement alone.
- (c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone.
- (d) The Question cannot be answered even using any of the Statements.
- 51. A question is given followed by two Statements I and II. Consider the Question and the Statements and mark the correct option.

Question: In a football match, team P playing against Q was behind by 3 goals with 10 minutes remaining. Does team P win the match?

Statement I: Team P scored 4 goals in the last 10 minutes.

Statement II: Team Q scored a total of 4 goals in the match.

Which one of the following is correct in respect of the above Question and the Statements?

- (a) The Question can be answered by using one of the Statements alone, but cannot be answered using the other statement alone.
- (b) The Question can be answered by using either Statement alone.
- (c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone.
- (d) The Question cannot be answered even using any of the Statements.

READING COMPREHENSION

Directions for the following 4 (four) items:

Read the following two passages and answer the items that follow the passages. Your answers to these items should be based on the passages only.

Passage-1

Maintaining an ecosystem just to conserve biodiversity will affect its commercial potential as well as the livelihoods dependent on the ecosystem. There is also a conflict between using an ecosystem only for livelihoods, for commercial exploitation, or strictly for conservation. Deforestation caused due to commercial exploitation will lead to indirect harm like floods, siltation problems and microclimatic instability, apart from adversely affecting livelihoods dependent on forests. These conflicts are particularly acute in developing countries where the dependence of people on the ecosystem is significant, and commercial exploitation has the potential to boost national income.

52. Which one of the following statements best reflects the critical message conveyed by the author of the passage?

- (a) Conservation of biodiversity is not an issue to be worried about when some people depend on ecosystems for their livelihoods.
- (b) Commercial exploitation of forests goes against the fundamental rights of the people dependent on forests for food and shelter.
- (c) Sustenance of livelihood and degradation of ecosystem while being together exacerbate one another, leading to conflicts and imbalance.
- (d) Commercial exploitation of ecosystems should be completely stopped.

53. With reference to above passage, the following assumptions have been made:

- I. No country needs ecosystems to depend boost national income.
- **II.** Resource-rich countries need to share their resources with those of scant the resources so as to prevent degradation of ecosystems.

Which of the above assumptions is/are valid?

- (a) I only (b) II only
- (c) Both I and II (d) Neither I nor II

Passage - 2

The history of renewable energy suggests there is a steep learning curve, meaning that, as more is produced, costs fall rapidly because of economies of scale and learning by doing. The firms' green innovation is path-dependent: the more a firm does, the more it is likely to do in the future. The strongest evidence for this is the collapse in the price of solar energy, which became about 90% cheaper during the 2010s, repeatedly beating forecasts. Moving early and gradually gives economies more time to adjust, allowing them to reap the benefits of path-dependent green investment without much disruption. A late, more chaotic transition is costlier.

- 54. Which one of the following statements best reflects the central idea of the passage?
 - (a) Economies of scale is essential for transition to green growth.
 - (b) Modern technological progress is intensely linked to path-dependent innovations.
 - (c) Countries with large economies are in a better position to adopt green technologies.
 - (d) Timing plays a crucial role in the case of green technology development.
- 55. With reference to the above passage, the following assumptions have been made:
 - I. Path-dependent green investments will eventually most likely benefit growth as well as public finances in a country like India.
 - **II.** If other green technologies follow the same pattern as that of solar energy, there will most likely be an easy green transition.

Which of the above assumptions is/are valid?

- (a) I only (b) II only
- (c) Both I and II (d) Neither I nor II

Directions for the following 4 (four) items:

Read the following **two passages** and answer the items that follow the passages. Your answers to these items should be based on the passages only.

Passage - 1

Each State in India faces a distinctive set of challenges regarding the impact of warming, but also offers its own set of opportunities for reducing emissions depending on its natural resources. For example, coastal States need to take action to protect their shores from sea level rise, districts that are drier need to prepare for variable monsoon precipitation. Himalayan regions have their own unique challenges, and selected parts of peninsular India and offshore areas offer great opportunities for harnessing wind power. These various aspects need to be considered for developing clear and sustainable goals for the future.

56. Which one of the following statements best and reflects the most logical, rational pragmatic message conveyed by the author of the passage?

- (a) The mitigation and adaptation strategies to address/tackle the climate change is essentially the responsibility of each State.
- (b) India is too diverse to implement any effective strategy or programme to address/tackle the climate change.
- (c) It is basically the responsibility of the Union Government to implement the climate action plans and ensure net zero emissions.
- (d) India needs to formulate effective climate change mitigation and adaptation strategies at the State/region level.

- 57. With reference to the passage, the following assumptions have been made:
 - I. Green energy production can be linked to/integrated with the climate change mitigation and adaptation strategies.
 - **II.** Effects of climate change are much more severe in coastal and mountainous regions.

Which of the above assumptions is/are valid?

- (a) I only (b) II only
- (c) Both I and II (d) Neither I nor II

Passage - 2

If the social inequality is the most acutely felt social problem in India, insecurity, more than poverty, is the most acutely felt economic problem. Besides those below the official poverty line, even those just over the poverty line are subject to multiple economic insecurities of various kinds (due to wealth and/or health risks, market fluctuations, job-related uncertainties). Many Government policies are actually intended towards mitigating these insecurities.

- 58. Which one of the following statements best reflects the critical message conveyed by the passage?
 - (a) India's political executive should be aware that poverty and social inequality and the consequent sense of insecurity is the main social problem.
 - (b) In India, poverty is the primary reason for social inequality and insecurity.
 - (c) Poverty and social inequality are so intricately linked that they pose an India unmanageable crisis for India.
 - (d) Insecurity, more than poverty, is the main economic issue that Government policies must address.
- 59. With reference to the above passage, the following assumptions have been made:
 - **I.** People above the poverty line also are prone to suffer from anxiety about economic insecurity.
 - **II.** Eradication of poverty can result in peace and social equality in the country.
 - Which of the above assumptions is/are valid?
 - (a) I only (b) II only
 - (c) Both I and II (d) Neither I nor II

Directions for the following 4 (four) items:

Read the following **two passages** and answer the items that follow the passages. Your answers to these items should be based on the passages only.

Passage - 1

One of the dismal realities agricultural sector in independent India has been that it never experienced a high-growth phase, unlike the non-agricultural economy. The highest decadal growth (compound annual growth rate or CAGR) for agriculture has been just 3.5% in the 1980s. Also, after experiencing a spurt in decadal growth during the 1980s, agricultural growth suffered relative stagnation thereafter. This is in sharp contrast to non-agricultural growth, which consistently increased from the 1980s to 2000s.

- 60. Which one of the following statements best reflects the corollary to the above passage?
 - (a) The benefit of economic reforms percolates down more slowly to the agriculture sector than in other sectors of the economy.
 - (b) For India, the green revolution was not as useful as it was expected to be.

- (c) India lagged behind other countries in adapting mechanised and modern farming.
- (d) Rural-to-urban migration resulted in the stagnant agriculture sector.
- 61. With reference to the passage, the following assumptions have been made:

The growing divergence between the fortunes of the agricultural and non-agricultural economy in India could have been economy reduced/contained by:

- I. adapting large-scale cultivation of commercial crops and viable corporate farming.
- II. providing free insurance for all crops and heavily subsidising seeds, fertilisers, electricity and farm machinery at par with developed countries.
- Which of the above assumptions is/are valid?
- (a) I only (b) II only
- (c) Both I and II (d) Neither I nor II

Passage - 2

In our country, handlooms are equated with a culture that ensures a continuity of tradition. This idea has become part of the public policy-framing and provides a legitimate basis for the State to support the sector. But the notion of tradition as a single, linear entity is being strongly contested today. The narratives dominant in defining culture/tradition in a particular way are seen to have emerged as the identities and histories of large sections. The discounted and, at times, forcibly stifled identities are fighting for their rightful place in history. Against this backdrop, when we promote handloom as a traditional industry, it is not surprising that large sections of our population choose to ignore it.

- 62. Which one of the following statements best reflects the most logical and rational message conveyed by the author of the passage?
 - (a) We need to free the handloom industry from the limited narrative linked to preserving cultural heritage.
 - (b) Continued State support to the handloom industry ensures the preservation of some of our glorious art forms and old traditions.
 - (c) Household units of the handloom sector should be modernised and made an economically viable organised industry.
 - (d) Handloom products need to be converted to machinemade designer products so as to make them more popular.
- 63. With reference to the above passage, the following assumptions have been made:
 - There is no need for the State to be involved in any manner in the handloom sector.
 - II. Handloom products are no longer appealing and attractive in the rapidly changing modern world.

Which of the above assumptions is/are valid?

- (a) I only (b) II only
- (c) Both I and II (d) Neither I nor II

Directions for the following 4 (four) items:

Read the following two passages and answer the items that follow the passages. Your answers to these items should be based on the passages only.

Passage - 1

In our country, regrettably, teaching and learning for the examination have been our forte but the new demands of society and the future of work require critical and independent thinking, learning through doing, asking questions from multiple disciplinary perspectives on the same issue, using evidence for building arguments, and reflecting and articulation. Higher education should not "either be a mere servant of the government policy or a passive respondent to public mood." Higher learning is all about how to think rather than what to think. Teaching has to be re-invented.

- 64. Which one of the following statements best reflects the central idea conveyed by the passage?
 - (a) India does not have enough resources for promoting quality education in its universities.
 - (b) The institutions of higher learning in the country should not be under the control of the Government.
 - (c) Classroom approach to higher education should be done away with.
 - (d) Classroom needs to be reimagined and teaching needs to be re-invented.
- 65. With reference to the above passage, the following assumptions have been made:
 - I. Higher education is a constantly evolving subject that needs to align towards new developments in all spheres of society.
 - II. In our country, sufficient funds are not allocated for promoting higher education.
 - Which of the above assumptions is/are valid?
 - (a) I only (b) II only
 - (c) Both I and II (d) Neither I nor II Passage - 2

If there is inequality in the pattern of population growth, there is greater inequality in food production and utilisation. As societies become wealthier, their consumption of animal products increases. This means that a greater proportion of such basic foodstuff as grains and legumes that could feed humans directly is instead being converted into feed for poultry and large farm animals. Yet this conversion of plant-based food into animal food for humans is far from efficient. Only 16% of the calories fed to chickens are recovered by us when we eat them. This conversion rate goes down to five to seven per cent in large animals that are fed grain to add fat and some protein before slaughter.

66. Which one of the following statements best reflects the crux of the passage?

- (a) There is an urgent need for a public policy to promote the consumption of cereal-based foods in wealthier societies.
- (b) Animal-based food is far less efficient than grain/plantbased food in terms of production and utilisation.
- (c) Plant-based protein should replace the animal-based protein in our daily diets.
- (d) Inequality in food production and consumption is inevitable in any fast changing society.
- 67. With reference to the above passage, the following assumptions have been made:
 - The food manufacturing and processing industries L. in every country should align their objectives and processes in accordance with the changing needs of the societies.

II. Wealthier societies tend to incur great loss of calories of food materials due to indirect utilisation of their agricultural produce.

Which of the above assumptions is/are valid?

- (a) I only (b) II only
- (c) Both I and II (d) Neither I nor II

Directions for the following 4 (four) items:

Read the following **two passages** and answer the items that follow the passages. Your answers to these items should be based on the passages only.

Passage - 1

Over the next 30 years, many countries are promising to move to net-zero carbon, implying that household emissions will have to be cut to close to nothing. A leading climate scientist reckons that, at best, half the reduction might be achieved through demand-side measures, such as behavioural changes by individuals and households. And even that would require companies and governments to provide more incentives to change through supply-side investments to make low-carbon options cheaper and more widely available.

- 68. Which one of the following statements best reflects the central idea conveyed by the passage?
 - (a) Moving to net-zero carbon is possible only by the reduction in household emissions.
 - (b) Low-carbon behaviour in people can be brought about by incentivising them.
 - (c) Cheaper goods and services can be made available to people by using low-carbon technologies.
 - (d) Manufacturing industries that use low-carbon technologies should be provided with subsidies.
- 69. With reference to the above passage, the following assumptions have been made:
 - **I.** Supply-side investments in companies can result in low-carbon behaviour in people.
 - **II.** People are not capable of adapting low-carbon behaviour without the involvement of Government and Companies.
 - Which of the above assumptions is/are valid?
 - (a) I only (b) II only
 - (c) Both I and II (d) Neither I nor II

Passage - 2

In only 50 years, the world's consumption of raw materials has nearly quadrupled, to more than 100 billion tons. Less than 9% of this is reused. Batteries of old vehicles contain materials such as lithium, cobalt, manganese and nickel that are pricey and can be hard to obtain. Supply chains are long and complicated. Buyers' risks are being aggravated by their suppliers' poor environmental and labour standards. Reusing materials makes sense. Once batteries reach the ends of their lives, they should go back to a factory where their ingredients can be recovered and put into new batteries.

- 70. Which one of the following statements best reflects the most logical, rational and pragmatic message conveyed by the passage?
 - (a) Green economy is not possible without reusing critical minerals.
 - (b) Every sector of economy should adapt the reuse of material resources immediately.
 - (c) Circular economy can be beneficial for sustainable growth.

- (d) Circular use of material resources is the only option for some industries for their survival.
- 71. With reference to the above passage, the following assumptions have been made:
 - I. Automobile factories are examples of the circular economy.
 - **II.** Economic growth is compatible with circular use of mineral resources.
 - Which of the above assumptions is/are valid?
 - (a) I only (b) II only
 - (c) Both I and II (d) Neither I nor II

Directions for the following 4 (four) items:

Read the following **two passages** and answer the items that follow the passages. Your answer to these items should be based on the passages only.

Passage - 1

It is hard to predict how changes in the climate and the atmosphere's chemistry will affect the prevalence and virulence of agricultural diseases. But there is a risk that such changes will make some plant infections more common in all climatic zones, perhaps catastrophically so. Part of the problem is that centuries of selective breeding have refined the genomes of most high-value crops. They are spectacular at growing in today's conditions but genetic variations that are not immediately useful to them have been bred out. This is good for yields but bad for coping with changes. A minor disease or even an unknown one could suddenly rampage through a genetically honed crop.

- 72. Which one of the following statements best reflects the central idea conveyed by the passage?
 - (a) Global climate change adversely affects the productivity of crops.
 - (b) Our total dependence on genetically honed crops entails possible food insecurity.
 - (c) Our food security should not depend on agricultural productivity alone.
 - (d) Genetically honed crops should be replaced with their wild varieties in our present cultivation practices.
- 73. With reference to the above passage, the following assumptions have been made:
 - I. Global climate change can result in the migration of several plant diseases to new areas.
 - **II.** Scientific understanding of the wild relatives of our present crops would enable us to strengthen food security.

Which of the above assumptions is/are valid?

- (a) I only (b) II only
- (c) Both I and II (d) Neither I nor II

Passage - 2

"A good statesman, like any other sensible human being, learns more from his opponents than from his fervent supporters. For his supporters will push him to disaster unless his opponents show him where the dangers are. So if he is wise he will often pray to be delivered from his friends, because they will ruin him. But, though it hurts, he ought also to pray never to be left without opponents; for they keep him on the path of reason and good sense. The national unity of free people depends upon a sufficiently even balance of political power to make it impracticable for the administration to be arbitrary and for opposition to be revolutionary and irreconcilable."

- 74. Which one of the following statements best reflects the critical message conveyed by the author of the passage?
 - (a) Without opposition parties, the administration in a democracy gets to become more responsible.
 - (b) Democracy needs to have revolutionaries in opposition to keep the government alert.
 - (c) Rulers in a democracy need the support of opposition for their political survival.
 - (d) In a democracy, the opposition is indispensable for the balance of political power and good governance.
- 75. With reference to the above passage, the following assumptions have been made:
 - I. In a democracy, a strong opposition is required only if the Head of Government is indifferent.
 - II. The more aggressive the opposition, the better is the governance in a democracy.

Which of the above assumptions is/are valid?

- (a) I only (b) II only
- (c) Both I and II (d) Neither I nor II

There has been no democracy that has grown economically without corporate capitalism. It helps in modernising the economy and enabling the transition from rural to urban, and agriculture to industry and services, which are inevitable with growth. It generates jobs - and there is no other way to fix a country's unemployment challenge without a further impetus to private business. Big companies can operate on a large scale and become competitive both domestically and externally. A vibrant corporate capitalist base also leads to additional revenues for the State- which in turn, can be used for greater welfare for the marginalised and creating a more level playing field in terms of opportunities.

- 76. Which one of the following statements best reflects the critical message conveyed by the author of the passage?
 - (a) Corporate capitalism is important for economic growth of a State and also for democracy.
 - (b) Corporate capitalism is imperative for a modern State to achieve its political objectives.
 - (c) No State ensure can its economic survival for long without the role of corporate capitalism.
 - (d) Corporate capitalism and democracy have mutual dependence for their continued existence.
- 77. With reference to the above passage, the following assumptions have been made:
 - I. Corporate capitalism promotes the growth of labour force and provides more employment opportunities.
 - II. Poor and marginalised sections of population are benefited by corporate capitalism due to trickle-down effect.

Which of the above assumptions is/are valid?

- (a) I only (b) II only
- (c) Both I and II (d) Neither I nor II

Passage - 2

"A network of voluntary associations stands as a 'buffer' between the relatively powerless individual and the potentially powerful State."

- 78. Which one of the following statements reflects the best explanation of the above passage?
 - (a) It emphasises the inability of the State to enforce its will in practice against the opposition of certain 1. Option groups within it.
 - (b) It is a cooperative organisation for the promotion of the well-being and development of the personality of its members.
 - (c) It takes individuals out of a state of isolation and gives them a chance to participate in the common endeavour.
 - (d) It permits citizens to have a variety of loyalties and allegiance.

Directions for the following 2 (two) items:

Read the following two passages and answer the items that follow the passages. Your answers to these items should be based on the passages only.

Passage - 1

A single number for inflation is an aggregate across different commodities and services — the price rise differs for different items of consumption. So, the single number is arrived at by assigning weights to different commodities and services. For WPI, the weights in production are used; for CPI, the consumption basket is used. But people are not homogeneous. The consumption basket is vastly different for the poor, the middle classes, and the rich. Hence, the CPI is different for each of these classes and a composite index requires averaging the baskets.

- 79. Which one of the following statements best reflects the most logical, rational and crucial message conveyed by the passage?
 - (a) We must use WPI exclusively in measuring price rise and CPI should be done away with.
 - (b) The present calculation of inflation rate does not correctly measure price rise of individual item/ commodity.
 - (c) Inflation data under-presents services in the consumption basket.
 - (d) Knowledge of inflation rate is not really of any use to anybody in the country.

Passage - 2

Trust stands commonly defined as being vulnerable to others.

Entrepreneurship implies trust in others and willingness to expose oneself to betrayal. Trust in expert systems is the essence of globalising behaviour; trust itself emerges as a supercommodity in the social market and defines the characteristics of goods and services in a global market. Trusting conduct also means holding others in good esteem, and an optimism that they are, or will be, competent in certain respects.

- 80. Which one of the following statements best reflects the crux of the passage?
 - (a) Trustworthiness cannot he expected in entrepreneurship.
 - (b) Trustworthy people are the most vulnerable people.
 - (c) No economic activity is possible without being exposed to betrayal.
 - (d) Trust is important though it entails risk.

Passage - 1

ANSWERS

QUANTITATIVE APTITUDE

Option (c) is correct 1.

We are asked to find natural numbers N < 50 that can be written as:

$$N = p + q + r$$

where p, q, r are distinct factors of N.

This gives two main clues:

Observations:

If N is divisible by 3, then it might be expressible as the sum of 3 equal or related factors.

Choose triplets of proper factors (excluding N itself) and check if their sum is N.

Focus on numbers with many factors (highly composite numbers). These are more likely to allow such combinations.

Quick Strategy:

Instead of checking all numbers < 50:

List highly composite numbers under 50: These include: 6, 12, 18, 24, 30, 36, 42, 48

For each such number, try adding 3 distinct proper factors (excluding N) to check if they sum to N.

- You'll find that:
- 6 → 1+2+3
- $12 \rightarrow 2+4+6$
- $\blacksquare 18 \rightarrow 3+6+9$
- 24 → 4+8+12
- 30 → 5+10+15
- 36 → 6+12+18
- 42 → 7+14+21
- 48 → 8+16+24

Option (a) is correct 2.

We are given:

⇒

p, q, r are three prime numbers, all less than 20. They satisfy the condition:

p-q=q-rp + r = 2q

So, q is the average of p and r, meaning the three numbers form an arithmetic progression.

Now, list all primes less than 20

{2,3,5,7,11,13,17,19} Let's find all triplets (r, q, p) in arithmetic progression with

 $q = \frac{(p+r)}{2}$, and all primes < 20.

Try each pair of primes (r, p) calculate $q = \frac{(p+r)}{2}$, and check if it's also a prime.

Valid triplets (in increasing order):

 $(3,5,7) \rightarrow \text{sum} = 15$

 $(3,7,11) \rightarrow q = 7 \rightarrow \text{valid} \rightarrow \text{sum} = 21$ $(5,11,17) \rightarrow q = 11 \rightarrow valid \rightarrow sum = 33$

- $(3,11,19) \rightarrow q = 11 \rightarrow valid \rightarrow sum = 33$

 $(7,13,19) \rightarrow q = 13 \rightarrow valid \rightarrow sum = 39$

Valid distinct sums of (p + q + r) = 15, 21, 33, 39

Thus, there are 4 distinct possible values we can get for (p +q+r)

3. Option (c) is correct

We're solving

$$\frac{1}{p} + \frac{1}{q} + \frac{1}{r} = 1$$

with p, q, $r \in N$. Since harmonic sums grow very slowly, only small values of p, q, r can satisfy this.

- Assume small values: Try p = 2 and compute $\frac{1}{q} + \frac{1}{r} = \frac{1}{2}$
 - You'll get:
 - q = 3, r = 6q = 4, r = 4
- Try p = 3
- $\Rightarrow \frac{1}{a} + \frac{1}{r} = \frac{2}{3}$

$$\Rightarrow -+-$$

Only small combo that works: q = r = 3

- List all distinct sums of p + q + r from the above:
 - 2+3+6=11
 - 2+4+4=10
 - **a** 3 + 3 + 3 = 9
 - There are 3 distinct possible values of p + q + r.
- 4. Option (d) is correct
 - We are given:
 - Team X scored N runs in 20 overs
- Team Y tied the score in 10% less overs = 20 10% of 20 = 20 - 2 = 18 overs
- If Team Y's run rate was 50% higher, they would tie the score in 12 overs

Let Team Y's actual run rate be r runs per over.

18r = N

- They tied the score in 18 overs,
- (Equation 1)

1)

(Equation 2)

- If Team Y's run rate were 50% higher, it would be 1.5r.
- They would tie the score in 12 overs:
 - $12 \times 1.5r = N$

$$18r = N$$
 (same as Equation

Both expressions give same, consistent many solutions. So, scored by team X cannot be determined.

5. **Option (a) is correct**

If a value is increased by k %, multiply by $\left(1 + \frac{k}{100}\right)$

If a value is decreased by k %, multiply by $\left(1 - \frac{k}{100}\right)$

Let:

$$x = \left(1 + \frac{k}{100}\right), \ y = \left(1 - \frac{k}{100}\right)$$

Now apply the four successive changes to the original price *p* : Final Price $q = p \cdot x \cdot y \cdot x \cdot y = p \cdot x^2 \cdot y^2$

Now apply the formula

$$q = p \cdot \left(1 + \frac{k}{100}\right) \cdot \left(1 - \frac{k}{100}\right) \cdot \left(1 + \frac{k}{100}\right) \left(1 - \frac{k}{100}\right)$$
$$q = p \cdot \left(1 - \frac{k^2}{10^4}\right) \cdot \left(1 - \frac{k^2}{10^4}\right)$$
$$q = p \cdot \left(1 - \frac{k^2}{10^4}\right)^2$$
$$q = p \cdot \left(\frac{10^4 - k^2}{10^4}\right)^2$$
$$q.10^8 = p(10^4 - k^2)^2$$

6. Option (b) is correct

Old price = ₹90	New price = ₹90 + 10% of ₹90 = ₹99
Mileage of bike = 16	Mileage of bike = 16
kmpl	kmpl

Distance travelled = 2200 km

Quantity of petrol used = $2200 \div 16 = 137.5$ L

Total expenditure = Fuel consumption per month \times Petrol price

= (Distance covered per month/Mileage) × Petrol price Total expenditure = $137.5 \times 90 = ₹12,375$ Now, Expenditure is to be maintained So, quantity of petrol to be used = $12,375 \div 99 = 125$ L Distance covered in 125 L petrol = $125 \times 16 = 2,000$ km Thus, the travel should be reduced by (2200 - 2000) = 200 km

7. Option (c) is correct

Since, 3, 5, 6, 9 divide a 4-digit number that leaves the remainder 1, 3, 4, 7 respectively we can find a number that is **2 more** than a multiple of LCM of all divisors (since in each case, remainder = divisor -2)

Since the difference is the same in each case $\{3 - 1 = 5 - 3 = 6 - 4 = 9 - 7\}$, we should subtract this difference (i.e. 2) from 1080 to get the required number.

So, N = 1080 - 2 = 1078

That means:

	$N = [LCM (3,5,6,9) \times k] - (2)$
⇒	LCM = 90
⇒	N = 90k-2
	We want smallest 4-digit N :
	$90k - 2 \ge 1000$
⇒	$90k \ge 1002$
	Take $k = 12$
⇒	$N = 90 \times 12 - 2 = 1078$
~	

8. Option (c) is correct

 $1 \times 3 \times 5 \times 7 \times 9 \times ... \times 999$ We can see that there is 5 in the multiplication. Multiplication rule of 5:

If you multiply an odd number by 5, the product will always end in 5.

Example: $(3 \times 5 = 15), (7 \times 5 = 35), \dots$ etc.

If you multiply an even number by 5, the product will always end in 0.

Example: $(4 \times 5 = 20)$, $(6 \times 5 = 30)$, etc.

Here there are only odd numbers,

Unit's place of $1 \times 3 \times = 3$

Unit's place of $1 \times 3 \times 5 = 5$

Unit's place of $1 \times 3 \times 5 \times 7 = 5$

Unit's place of $1 \times 3 \times 5 \times 7 \times 9 = 5$

Upon multiplication till 999, we will observe that the unit's place will remain 5.

9. Option (c) is correct

Go through numbers from 1 to 100 and count only those that are not divisible by 2, 3, 5, 7, or 9.

Let's understand the pattern:

Any number divisible by 2, 3, 5, 7, or 9 is to be excluded.

Since, all even numbers are divisible by 2, they are excluded. This brings the count down to 50.

Multiples of 5 that are not even are to be excluded i.e. those ending with digit 5. This brings the count down to 40.

Multiples of 3 that are not even and multiples of 5 are also to be excluded i.e. 3, 9, 21, 27, 33, 39, 51, 57, 63, 69, 81, 87, 93, 99. The count comes down to 26.

Multiples of 7 that are not included yet will also be eliminated i.e. 7, 49, 77, 91. Numbers divisible by 9 are already excluded by removing multiples of 3.

Alternative :

There are 25 prime numbers between 1 and 100.

remaining 21 primes number not divisible by 2, 3, 5, or 7. Including 1, which is also not divisible by 2, 3, 5, 7, or 9, gives a total of 22 such numbers.

10. Option (d) is correct

Maximum value of (x + y) can be achieved if we take maximum value of x and y each.

 \Rightarrow x = 8 and y = 7

 $\Rightarrow (x + y)_{max} = 8 + 7 = 15$

Minimum value of (x - y) will be achieved when x is minimum and y is maximum

$$\Rightarrow x = 4 \text{ and } y = 7$$

$$\Rightarrow (x - y)_{\min} = 4 - 7 = -3$$

Now, $\frac{(x + y)_{\max}}{(x - y)_{\min}} = \frac{15}{-3} = -5$

So, none of the above is the correct answer.

11. Option (b) is correct

p and k are both prime, and $p^2 + k$ is also prime, and $p^2 + k < 30$ $p^2 + k < 30$, with p, k primes and $p^2 + k$ prime. Possible p: 2, 3, 5 (since $7^2 = 49 > 30$). For p = 2, 4 + k < 30 \Rightarrow k < 26 Check k = 2, 3, 5, 7, 11, 13, 17, 19, 23 Primes for 4 + k: 7, 11, 17, 23 $\rightarrow k = 3, 7, 13, 19$ For p = 3, 9 + k < 30 \Rightarrow k < 21 Check k = 2, 3, 5, 7, 11, 13, 17, 19Only 9 + 2 = 11 prime $\rightarrow k=2$. For p = 5, 25 + k < 30 \Rightarrow k < 5 Only k = 2, 3 possible, but 27, 28 not prime \rightarrow no solution. Possible k: 2, 3, 7, 13, 19

Thus, 5 values of k are possible.

12. Option (d) is correct

Factor 1001:

 $1001 = 7 \times 11 \times 13$

Let the three numbers be a, b, c.

To get LCM = 1001, each prime (7, 11, 13) must appear in at least one of the numbers.

To keep HCF = 1, **no prime** can appear in **all three** numbers. For each prime (say 7), you can assign it to:

Any **non-empty** subset of {a,b,c} **except** all three.

So allowed choices $= 2^3 - 2 = 6$ ways

(Since there are 8 subsets total, but we remove the empty set and the full set.)

Since the primes are independent, total sets:

 $6 \times 6 \times 6 = 216$

Let us take an example: 7 goes to a and b 11 goes to b and c 13 goes to a only Build the numbers: $a = 7 \times 13 = 91$ $b = 7 \times 11 = 77$ c = 11 LCM $(91, 77, 11) = 7 \times 11 \times 13 = 1001$ HCF (91, 77, 11) = 1 Sample set: (a, b, c) = (91, 77, 11)13. Option (c) is correct Given: PQR - PS = PPTAll letters are non-zero digits, all distinct Q = 3, T < 6Write the equation numerically: 100P + 10Q + R - (10P + S) = 100P + 10P + T \Rightarrow (100P + 30 + R) - (10P + S) = 110P + T \Rightarrow R - S = 20P + T - 30 Now: P is a digit (1–9) T < 6 (i.e., 1 to 5) R, S ∈ [1–9] R - S must be between -8 and 8 (since digits) Try P = 1: RHS = 20(1) + T - 30 = T - 10 \rightarrow only T = 1 to 5 \rightarrow R - S = -9 to -5 Try P = 2: RHS = 40 + T - 30 = T + 10 \rightarrow R – S = 11 to 15 (can't be considered) Only valid P is P = 1, and for R - S to be a digit difference (say, 1 to 8), we want: Let R - S = -8-8 = T - 10 \Rightarrow T = 2 \Rightarrow R - S = -7Let ⇒ -7 = T - 10 \Rightarrow T = 3, which can't be considered since Q = 3 Let R - S = -6-6 = T - 10 \Rightarrow 4 = T \Rightarrow Let R - S = -5-5 = T - 10 \Rightarrow 5 = T \rightarrow Let R - S = -4-4 = T - 10 \Rightarrow \Rightarrow 6 = T, which is not valid Now, T < 6, which is only possible if R - S = -8, -7, -6 or -5So now, P = 1, Q = 3 and T = 2, 4 or 5

For T = 2

(R - S) = (1 - 9) which can't be considered since P = 1 and now R can't be equal to 1.

No possible pair of (R, S)For T = 4(R - S) = -6So, possible pair are (2, 8), (3, 9)For T = 5(R - S) = -5So, possible pair are (4, 9), (2, 7) So, we get 4 such valid (R, S) pairs

14. Option (b) is correct

Prime factorisations $7 = 7^1$ $343 = 7^3$ $385 = 5 \times 7 \times 11$ $1000 = 2^3 \times 5^3$ $2401 = 7^4$ $77777 = 7 \times 41 \times 271$ Total power of 7 = 1 + 3 + 1 + 4 + 1 = 10Total power of 5 = 1 + 3 = 4Since $35^n = 5^n \times 7^n$, the maximum n is: 4

15. Option (c) is correct

Let the length of the tram = L meters Let the speed of the tram = V km/hThe length of the train are same.

$(V-3) \times \frac{5}{18} \times 8 = (V-4) >$	$\times \frac{5}{18} \times 9$
$\Rightarrow \qquad (V-3) \times 8 = (V-4) >$	< 9
$\Rightarrow 8V - 24 = 9V - 36$	
\Rightarrow V = 12 km/h	

Now,

\Rightarrow	$L = 8 \times \frac{5}{18} \times 9$
\Rightarrow	$L = 4 \times 5 = 20 \text{ m}$

16. Option (b) is correct

Count digits in N^2

12345678987654321 has 17 digits

Using the formula:

If a number has d digits, when d is odd, then its square root $\begin{bmatrix} J & 1 \end{bmatrix}$

 $L = (12 - 4) \times \frac{5}{18} \times 9$

will have:
$$\left\lfloor \frac{d+1}{2} \right\rfloor$$
 digits
So, number of digits in N = $\left\lfloor \frac{17+1}{2} \right\rfloor$ = $\left\lfloor \frac{18}{2} \right\rfloor$ = 9

- 17. Option (d) is correct
 - 20 pipes (x set) 70% filled = 14 minutes 100% filled = 20 minutes $\frac{3}{8}$ part filled = 6 minutes 10 pipes (y set) 1 part filled = 16 minutes $\frac{1}{2}$ part empty = 20 minutes 16 pipes (z set)

Full part empty = 40 minutes

Now

	X	у	Z			
	20 pipes in	10 pipes in	16 pipes in			
	20 minutes	16 minutes	40 minutes			
efficiency	4	5	-2			
Capacity of tank		80 units				
According to the conditio	n					
	X	у	Z			
New efficiency	2	5	-2			
		$\frac{1}{2}$				
New capacity	40 units					
The required time = —	$\frac{40}{5} = 16$	minutes				

$$2 + \frac{5}{2} - 2$$

18. Option (c) is correct

 $1^n = 1$ for any natural number.

So, the total depends only on how 2^n behaves.

Let's compute a few values of 2ⁿ and add them to 1ⁿ:

n	2 ⁿ	$1^{n} + 2^{n}$	Remainder when divided by 4
1	2	1 + 2 = 3	3
2	4	1 + 4 = 5	1
3	8	1 + 8 = 9	1
4	16	1 + 16 = 17	1

So, for n = 1, remainder is 3

For $n \ge 2$, remainder is always 1

There are 2 different remainders possible.

19. Option (c) is correct

Let P = QQQ, a 3-digit number with all digits the same. That means:

P = 100Q + 10Q + Q = 111Q

We are to find HCF of 111Q and 481

Prime factorisation of 111

 $111 = 3 \times 37$

So:

 $P = 111Q = 3 \times 37 \times Q$

Factor 481

 $481 = 37 \times 13$

Thus, HCF = 37

20. Option (b) is correct

X can complete one-third of a certain work in 6 days. So, X can complete total work in $6 \times 3 = 18$ days Y can complete one-third of a certain work in 8 days. So, Y can complete total work in $8 \times 3 = 24$ days Z can complete three-fourth of a certain work in 12 days.

So, Z can complete total work in
$$\left(\frac{4}{3}\right) \times 12 = 16$$
 days

Let the total amount of work be the LCM of 16, 18 and 24, i.e. 144 units

So, efficiency of
$$X = \left(\frac{144}{18}\right) = 8$$
 units/day

Efficiency of
$$Y = \left(\frac{144}{24}\right) = 6$$
 units/day

Efficiency of
$$Z = \left(\frac{144}{16}\right) = 9$$
 units/day

Efficiency of X,Y and Z together = (8 + 6 + 9) units/day

= 23 units/day

Work done by Y in
$$\frac{26}{3}$$
 days = $\left(\frac{26}{3}\right) \times 6 = 52$ units

Remaining work = 144 - 52 = 92 units Time required to complete this work when they work together

$$=\frac{92}{23}=4$$
 days

So, n = 4

21. Option (c) is correct

Statement 1:

There exists a natural number which when increased by 50% has the same number of factors.

Let the number be *n*.

Increased by 50% means:

$$\rightarrow$$
 New number = $n + \frac{50}{100}$ $n = \frac{3n}{2}$

So, we must find a natural number n such that both n and $\frac{3n}{2}$

are integers and have the same number of factors.

Take n = 2:

$$\frac{3n}{2} = 3$$

Factors of 2: $\{1, 2\} \rightarrow 2$ factors Factors of 3: $\{1, 3\} \rightarrow 2$ factors

Statement 1 is correct

Statement 2:

There exists a natural number which when increased by 150% has the same number of factors.

New number
$$= n + \frac{150n}{100} = \frac{5n}{2}$$

Again, $\frac{5n}{2}$ must be an integer. So, *n* must be even.

$$\frac{5n}{2} = 5$$

Factors of 2: $\{1, 2\} \rightarrow 2$ factors Factors of 5: $\{1, 5\} \rightarrow 2$ factors Statement 2 is also correct Both I and II are correct.

22. Option (a) is correct

Find the remainder when $9^3 + 9^4 + 9^5 + \dots + 9^{100}$ is divided by 6.

$$\operatorname{Rem}\left(\frac{9}{6}\right) = 3, \operatorname{Rem}\frac{(9 \times 9)}{6} = 3, \operatorname{Rem}\frac{(9 \times 9 \times 9)}{6} = 3, \dots$$

So,
$$\operatorname{Rem}\frac{(9 \times 9 \times 9 \times 9 \times 9)}{6} = 3.$$

Now,
$$\operatorname{Rem}\left(\frac{9^3 + 9^4 + 9^5 + \dots + 9^{100}}{6}\right)$$

$$= \operatorname{Rem}\left(\frac{3+3+3+\dots+98 \operatorname{times}}{6}\right)$$
$$= \operatorname{Rem}\left(\frac{3\times98}{6}\right)$$
$$= 0$$

23. Option (d) is correct

A number has exactly 4 distinct factors in the following two main cases:

Product of two distinct prime numbers **Example:** $6 = 2 \times 3 \rightarrow$ factors: 1, 2, 3, 6

Cube of a prime number

Example: $8 = 2^3 \rightarrow$ factors: 1, 2, 4, 8

So, in the 1-digit range (1 to 9), the numbers with exactly 4 factors are:

 $6 \rightarrow$ factors: 1, 2, 3, 6

 $8 \rightarrow$ factors: 1, 2, 4, 8

Thus, possible answers are 6 and 8.

We need to pick the smallest one — which is obviously 6.

Answer: (d) The question can be answered even without using any of the statements.

24. Option (b) is correct

 $(p+q)^2 - 4pq$ $p^2 + q^2 + 2pq - 4pq$ $p^2 + q^2 - 2pq$ $(p-q)^2$

Hence, it will always be positive.

25. Option (d) is correct

Given:

Three players X, Y, and Z scored a total of 37 runs. The ratio of X to Y = Y to Z, i.e.

> $\frac{X}{Y} = \frac{Y}{Z}$ $Y^2 = X \times Z$

This is a geometric mean relationship:

$$\chi = \sqrt{X \times Z}$$

So, Y is the geometric mean of X and Z.

That means X < Y < Z or Z < Y < X, depending on the values. Thus, the correct option is Cannot be determined due to insufficient data.

26. Option (c) is correct

Given that p + q = 10, where p and q are integers.

When the sum of two numbers is fixed, their product is maximum when the numbers are as close as possible.

So, Value I = $5 \times 5 = 25$

To maximize $p \times q$, both numbers must be either positive or negative.

Maximum when both are negative: $(-6) \times (-4) = 24$

Maximum when both are positive: $5 \times 5 = 25$, and (5, 5) lies within the range

 $p \ge -6, q \ge 4$ So, Value II = 25Therefore, Value I = Value II 27. Option (c) is correct Value I: Minimum average of 11 consecutive integers, where each integer is ≥ -5 Let the first number in the set be a, and the set is: *a*, *a* + 1, *a* + 2, ..., *a* + 10 The average of 11 consecutive integers is: Average = $\frac{a + (a+1) + \dots + (a+10)}{11} = \frac{11a + 55}{11} = a + 5$ We want the minimum average, subject to: All 11 numbers must be ≥ -5 That means the smallest number, a, must be ≥ -5 So, to minimise average a + 5, take a = -5 \Rightarrow Minimum average = -5 + 5 = 0Value I = 0Value II: Minimum product of 11 consecutive nonnegative integers Let the first number be b, and the set is: b, b + 1, ..., b + 10These are non-negative integers: so $b \ge 0$ We want the minimum product Notice: If any number in the product is 0, the entire product becomes 0 So, to minimise the product, we must include 0 in the set. Set b = 0 \Rightarrow b = 0 \Rightarrow set is: 0, 1, 2, ..., 10 $Product = 0 \times 1 \times 2 \times \dots \times 10 = 0$ Value II = 0Thus, Value I = Value II 28. Option (a) is correct The average of p, q, r is k, so:

$$\frac{p+q+r}{3} = k$$

$$p+q+r = 3k$$
per the question,
$$p+q+r = 3k$$

$$+a) + (k-a) + r = 3k$$

$$2k+r = 3k$$

$$r = k$$

As

(k

29. Option (a) is correct
Let
$$r = 0.5$$
 which lies betw

5.5, which lies between 0 and 1. **Statement I:** $x^2 > x^3$ $x^2 = (0.5)^2 = 0.25$

$$x^3 = (0.5)^3 = 0.125$$

Since 0.25 > 0.125, Statement I is true

Statement II: $x > \sqrt{x}$

$$\sqrt{0.5} \approx 0.707$$

Since 0.5 < 0.707, Statement II is false

30. Option (c) is correct

Let the two natural numbers be a and a+10.

So, the numbers between them are:

There are 9 numbers between them.

We now check how many of these are divisible by 5.

Among any 10 consecutive natural numbers, there are exactly 2 multiples of 5 (since every 5th number is a multiple of 5).

So, in the 9 numbers between a and a+10, there can be: At most 2 multiples of 5.

But not more than 2, and at least 1, depending on where a starts.

So, the number of natural numbers divisible by 5 between them can be:

Either 1 or 2, depending on the starting point.

LOGICAL REASONING AND ANALYTICAL ABILITY

31. Option (b) is correct

Here, the series is given as:

January, January, December, October, X, March, October, Y, September

Upon observation, it is seen that the series follows the decreasing order as 0, -1, -2 and so on.

$\operatorname{Jan} - 0 = \operatorname{Jan}$	
Jan - 1 = Dec	(-1 means moving 1 month backwards)
Dec - 2 = Oct	(-2 means moving 2 months backwards)
Oct - 3 = X = July	(-3 means moving 3 months backwards)
July - 4 = Mar	(-4 means moving 4 months backwards)
Mar - 5 = Oct	(-5 means moving 5 months backwards)
Oct - 6 = Y = Apr	(-6 means moving 6 months backwards)
Apr - 7 = Sep	(-7 means moving 7 months backwards)

32. Option (c) is correct

To divide a cube into smaller cubes with minimum number of cuts, the cuts must be made in three perpendicular directions (length, breadth, and height).

If a cube is cut into $a \times b \times c$ smaller cubes, then: Total small cubes = $a \times b \times c$ Minimum number of cuts = (a - 1) + (b - 1) + (c - 1)Find dimensions that give 60 cubes Find integers a,b,c such that $a \times b \times c = 60$ $3 \times 4 \times 5 = 60$ So, possible dimensions are $3 \times 4 \times 5$. Minimum number of cuts: (3-1) + (4-1) + (5-1) = 2 + 3 + 4 = 9

Statement I is correct.

Cubes not painted are the ones that lie completely inside, i.e., not on the outer layer in any dimension.

Formula for unpainted (inner) cubes:

 $(a-2) \times (b-2) \times (c-2)$ So, $(3-2) \times (4-2) \times (5-2) = 1 \times 2 \times 3 = 6$ Statement II is also correct.

33. Option (c) is correct

It is given that 7 * 24 = 25 and 12 * 16 = 20The given numbers follow that Pythagorean triplet $7^2 + 24^2 = 49 + 576 = 625 = 25^2$ $12^2 + 16^2 = 144 + 256 = 400 = 20^2$ So, $16 * 63 = 16^2 + 63^2 = 256 + 3969 = 4225 = 65^2$ So, the answer is 65.

34. Option (d) is correct Statement I:

Given:

 $A \leq B > C < D > E > F \geq G = H$ Let's extract what we know: $A \leq B$ B > C $C < D \Rightarrow D > C$ D > E

E > F

F > G = H

Now focus only on the relevant part:

B > C < D > E

This sequence doesn't guarantee a direct comparison between B and E because:

C is less than both B and D

But D is greater than E, so E < D

Still, we don't know how B and E compare directly

So, $\mathbf{B} > \mathbf{C}$ and $\mathbf{D} > \mathbf{E}$, but nothing links B and E directly in a way that always holds.

Conclusion: B is not always greater than E. It may or may not be.

Statement I is FALSE

Statement II:

Given:

$$P > Q = R \ge S = T \le U = V > W$$

We are asked: Is S always less than V?

Let's work step by step: Q = R $R \ge S \rightarrow So Q \ge S$

S = T

 $T \leq U \rightarrow So S \leq U$

U = VV > W

Now from above:

Since $S \leq U$ and $U = V \Rightarrow S \leq V$

But also, $R \ge S \Rightarrow So Q/R \ge S \le V$

There is no step suggesting S is equal to or greater than V And we have $S \leq V$, so the maximum S can be is equal to V Thus, S is not always less than V, because S = V is also possible.

Conclusion: S is not always less than V.

Statement II is FALSE

Thus, both the statements given above are incorrect.

35. Option (c) is correct

AB CC A BCCC BBC C

The option (c) completes the given sequence as AB (B) CC (C) A (B) CCC (A) BBC (C) C.

36. Option (b) is correct

Checking ratios:

$\frac{90}{2} = 2.5$
36 2.5
$\frac{36}{-2}$
18^{-2}
18_15
$\frac{1}{12} = 1.3$
f the ratio
T (1 1

Ŀ continues backward decreasing by 0.5: Next backward ratio would be 1.0 from 12 to X Then 0.5 from X to 24

So:	$\frac{12}{X} = 1$
\Rightarrow	X = 12
and	$\frac{X}{24} = 0.5$
\Rightarrow	X = 12

37. Option (b) is correct

P and Q start together at 5:00 a.m. walking in opposite directions on a circular track.

P's speed = 5 rounds/hour

Q's speed = 3 rounds/hour

Relative speed: Since they walk opposite directions, relative speed = 5 + 3 = 8 rounds/hour.

Time interval for crossings:

Total time from 5:20 to 7:00 = 2 hours = 100 minutes.

Total crossings in 100 minutes = $\frac{100}{\text{(time per crossing)}}$

 $\frac{100}{7.5} = 13$

38. Option (b) is correct

 $60 \ 15 \ 3 \ 20 \ 4 = 20$ Let's try combinations of **P**, **Q**, **R**, **S** (i.e., +, -, ×, ÷) to get 20. $60 - 15 \times 3 + 20 \div 4$ $15 \times 3 = 45$ 60 - 45 = 15 $20 \div 4 = 5$ 15 + 5 = 20

39. Option (d) is correct

- Count digits contributed by 1-digit numbers (1 to 9)
 - There are 9 numbers
 - Each contributes 1 digit \rightarrow Total = 9 × 1 = 9 digits Cumulative count = 9
- Count digits from 2-digit numbers (10 to 99)
 - Number of 2-digit numbers = 99 10 + 1 = 90
 Each contributes 2 digits → Total = 90 × 2 = 180 digits
 - Cumulative count = 9 + 180 = 189
- Count digits from 3-digit numbers (100 onwards) We need the digit at position 489, and we've used 189 digits

so far. So remaining: 489 – 189 =300 digits left. Each 3-digit number contributes 3 digits.

 $300 \div 3 = 100$ full 3-digit numbers

So, the 489th digit is the last digit of the 100th 3-digit number.

3-digit numbers start from 100
100th 3-digit number = 100 + 99 = 199

The 489th digit is the last digit of 199, which is 9.

40. Option (a) is correct

- Statements:
- P says:
 - "I did not steal." ✓
- "Q stole it." ?
- Q says:
 - "R did not steal."
 - "I did not steal."
- R says:
 - "I did not steal."
 - "I do not know who did it."

Try assuming P is guilty:

Then P is lying. His two statements are:

- "I did not steal" \rightarrow (lie)
- "Q stole it" \rightarrow (also a lie)

So, both P's statements are false \rightarrow consistent.

Now check Q's and R's statements — they must be true: Q: "R did not steal." (True) Q: "I did not steal." (True — if P is guilty) R: "I did not steal." R: "I don't know who did it." (He's telling the truth) Everything fits. **Try assuming Q is guilty:** Q says: "R did not steal." "I did not steal."

That would make both statements false, which implies R did steal, and Q did steal — contradicts that only one person is guilty.

- Condition is Invalid
- Try assuming R is guilty:

R says:

"I did not steal."

"I don't know who did it."

Two lies — okay. Now check others:

Q: "R did not steal." (But R did steal — so Q is also lying)

Now we have **two liars** \rightarrow Not valid

Final Conclusion:

Only case where only one person is guilty and only one

person lies is when:

P is the thief

- 41. Option (c) is correct
- Given: • Teams: P, Q, R
- Each plays with each other once ⇒ 3 matches:
 - P vs Q
 - Q vs R
 - R vs P
- Final Points:
 - P = 3
- Q = 2
- R = 1
- Each team scored exactly 1 goal in total. Now, Match 1: P vs Q
- Draw: 0–0
- P gets 1 pt
- Q gets 1 pt
- Match 2: Q vs R
- R scores 1 goal
- We don't know if Q also scores
 Let's test two possibilities in Match 2:
 Case 1: R 1 Q 0
- R wins \rightarrow gets 2 pts
- Q gets 0
- Total points:
 - P: 1 (from Match 1)
 - Q: 1 + 0 = 1 (But Q has 2)
 - R: 2

Contradiction — Q must have 2 points, but only has 1 here. Case 2: R 1 - Q 1

Case 2: $\mathbf{K} \mathbf{I} = \mathbf{Q} \mathbf{I}$

Match is a draw \rightarrow each gets 1 pt Q already had 1 pt from Match 1

- Now Q: 1 + 1 = 2
- R: 1 pt

Also, Q scores 1 goal (this match), R scores 1 goal (this match)

So now:

P: 0 goals so far (Match 1)

Q: 1 goal (Match 2)

R: 1 goal (Match 2)

We need P to score 1 goal somewhere.

Final Match: P vs R

P has 1 point (from draw with Q) \rightarrow needs 2 more to reach 3

So, P must win vs $R \rightarrow gets 2$ more pts $\Rightarrow 3$ total

Also, P must score 1 goal here

Since R already scored 1 goal (vs Q), they score 0 here So, Match 3: P 1 - R 0

Final Summary:

Match	Score	Points Given
P vs Q	0 - 0	P: 1, Q: 1
Q vs R	1 – 1	Q: 1, R: 1
P vs R	1 - 0	P: 2, R: 0

Total:

P: 1 + 2 = 3 pts, 1 goal Q: 1 + 1 = 2 pts, 1 goal

R: 1 + 0 = 1 pt, 1 goal

Conclusion:

Yes, Q can score a goal against R in Match 2.

And R scores 1 goal against Q.

So, Statement 1 and 2 are consistent with all conditions and are correct.

42. Option (c) is correct

We are given:

P is the brother of Q and R

S is R's mother

T is P's father

Given deductions:

P is male, and sibling of Q and R.

S is R's mother \rightarrow So S is the mother of R (and likely Q and P too, unless stated otherwise).

T is P's father \rightarrow So T is father of P (and likely Q and R too). Now evaluate each statement:

• S and T are a couple

Both are parents of R and P. S and T are a couple Definitely true

• Q is T's son

• Q's gender is not given. Q could be daughter. Not definitely true

• T is Q's father

• If P, Q, and R are siblings, and T is P's father \rightarrow T is Q's father too. Definitely true

- S is P's mother
 - If R and P are siblings, and S is R's mother \rightarrow S is P's mother. Definitely true
- R is T's daughter
 - R's gender is not given. Could be son or daughter.

Not definitely true

- P is S's son
 - P is male, and S is mother of R (P's sibling) \rightarrow S is mother of $P \rightarrow$ So yes, P is S's son

Definitely true

Only 4 statements are definitely true

43. Option (a) is correct

Let's try to assign numerical values to letters based on position in the alphabet:

• N = 14, O = 15, T = 20, E = 5, S = 19

■ NO = 210

 $\rightarrow 14 \times 15 = 210$

So, product of letter positions.

- NOT = 4200
- $\rightarrow 14 \times 15 \times 20 = 4200$

Product of positions again.

- NOTE = 21000
- $\rightarrow 14 \times 15 \times 20 \times 5 = 21000$

Now for NOTES:

We already have:

- NOTE = 21000
- Next letter: S = 19
- $\rightarrow 21000 \times 19 = 399000$

44. Option (d) is correct

г	\rightarrow	C
R	\rightarrow	5
А	\rightarrow	4
N	\rightarrow	3
C		~

0		~
E	\rightarrow	1

Similarly, GERMANY can be coded as:

$G \rightarrow$	9
$E \rightarrow$	1
$R \rightarrow$	5
${\rm M}$ \rightarrow	8
$\mathbf{A}\!\rightarrow\!$	4
$N \rightarrow$	3
$Y \rightarrow$	7

Using letter numbers from the given words, YEMEN can be coded as:

> $Y \rightarrow 7$ $E \rightarrow 1$ $M \rightarrow 8$ $E \rightarrow 1$ $N \rightarrow 3$

So, YEMEN can be coded as 71813

45. Option (b) is correct

We are given:

- P, Q, R, S, T are all distinct digits (0–9), and $T \neq 0$
 - P = 3TQ = R + 3
 - S = Q + 4

Since $P = 3T$, and	digits go	up to	o 9,	Т	can	be	1, 2,	or	3
(because $3 \times 4 = 12$ is r	ot a digit)								

t	P = 3T
1	3
2	6
3	9

- For each of these values, try valid R so that:
 - Q = R + 3
 - S = Q + 4 = R + 7
 - All of P, Q, R, S, T must be distinct digits
 - $R \le 2$, else s will be greater than 9, which is not possible **Trying combinations:**
- T = 1, P = 3
 - Try $R = 0 \rightarrow Q = 3$, $S = 7 \rightarrow But P = 3$, $Q = 3 \rightarrow Not$ distinct
 - $R = 2 \rightarrow Q = 5$, $S = 9 \rightarrow Digits: 3, 5, 2, 9, 1 \rightarrow All distinct$ $<math>\rightarrow Valid$
- T = 2, P = 6
 - $R = 0 \rightarrow Q = 3$, $S = 7 \rightarrow Digits: 6, 3, 0, 7, 2 \rightarrow all distinct$ $<math>\rightarrow Valid$
 - R = 1 → Q = 4, S = 8 → Digits: 6, 4, 1, 8, 2 → All distinct → Valid
- T = 3, P = 9
 - $R = 0 \rightarrow Q = 3$, $S = 7 \rightarrow Digits: 9, 3, 0, 7, 3 \rightarrow Q = 3$ and $T = 3 \rightarrow clash$
 - R = 1 \rightarrow Q = 4, S = 8 \rightarrow Digits: 9, 4, 1, 8, 3 \rightarrow All distinct \rightarrow Valid

■ $R = 2 \rightarrow Q = 5$, $S = 9 \rightarrow But P = 9$, $S = 9 \rightarrow Not$ distinct Total valid combinations: 4

Examples:

- 35291
- 63072
- 64182
- 94183
- So, there are 4 possible numbers.

46. Option (c) is correct

Let's analyse the pattern in the sequence, we get consecutive prime numbers:

1, 3, 6, 11, 18, X, 42

$$1 - 3 - 3 - 6 - 5 - 11 - 7 - 18 - 12 - 9 - 3 - 42$$

Final Answer: X = 29

47. Option (c) is correct



To reach from D to F, the roads to be travelled will be DC + AC + AB + BF = 6 + 10 + 6 + 9 = 31 km

48. Option (b) is correct

$64 = (4)^3$	 $343 = (7)^3$
$216 = (6)^3$	 $729 = (9)^3$
$512 = (8)^3$	 Х

Upon observing the given data, we see that cube of certain number 'a' is written as cube of (a + 3).

So, $512 = (8)^3$ will be written as $(8+3)^3 = (11)^3 = 1331$.

49. Option (d) is correct

 $PP \times PQ = RRSS$ $P \le 3$

If
$$P = 1$$

then $11 \times 1Q = RRSS$ (not possible since $11 \times 1Q$ won't be four digit number)

 $Q \le 4$

P = 2

then $22 \times 2Q = RRSS$ (not possible since $22 \times 2Q$ won't be a four digit number)

If P = 3

then $33 \times 3Q = RRSS$

Only when
$$Q = 4$$
 it satisfies the above equation

$$33 \times 34 = 1122$$

hence, d is the correct answer.

50. Option (d) is correct

Step 1: Analyse Statement 1 alone

P has two sisters: R and S.

This tells us about P's siblings but nothing about Q or how Q relates to P.

Conclusion: Statement 1 alone is not sufficient.

Step 2: Analyse Statement 2 alone

R's father is the brother of Q.

This tells us that Q is the uncle/aunt of R.

But we don't know who P is or their relation to R or Q.

Conclusion: Statement 2 alone is not sufficient.

Step 3: Analyse both statements together

From Statement 1: P, R, S are siblings (P has two sisters R and S).

From Statement 2: R's father is the brother of $Q \rightarrow Q$ is sibling of R's father.

Since P and R are siblings, they share the same father. Therefore, Q is the brother (or sister) of P's father. So:

Q is the uncle or aunt of P (i.e., Q is sibling of P's father). Here, gender of P and Q is not known. Thus, we cannot determine the unique relationship between P and Q.

Hence, option (d) is the correct answer

51. Option (c) is correct

Statement I:

Team P scored 4 goals in the last 10 minutes.

Since P was 3 goals behind, scoring 4 goals means:

Team P scored enough to go 1 goal ahead

But we don't know how many goals Team Q scored in total.

So, Statement I alone is NOT sufficient, because if Team Q

also scored during that time, they might still have won or drawn. Statement II:

Team Q scored a total of 4 goals in the match.

We know Q scored 4 total goals.

But we don't know how many goals P scored in total.

So, this alone is not sufficient either.

Combine both statements:

Team Q scored a total of 4 goals.

Team P was 3 goals behind \Rightarrow Team P had 1 goal at that point (because 1 + 3 = 4).

Then, Team P scored 4 more goals, so the total = 1 + 4 = 5 goals.

Team Q had 4 total goals.

Team P = 5 goals, Team Q = 4 goals \Rightarrow Team P wins

Together, the statements are sufficient.

(c) The question can be answered by using **both statements** together, but not using either statement alone.

READING COMPREHENSION

52. Option (c) is correct

Reason: This option best reflects the critical message of the passage, which highlights:

The conflict between conservation, livelihood needs, and commercial use.

How commercial exploitation harms ecosystems, affecting livelihoods.

How these issues are especially serious in developing countries.

Why not the others?

(a) Ignores conservation concerns.

(b) Talks about rights, which the passage does not.

(d) Suggests complete stoppage of commercial use, which the passage does not advocate — it discusses balancing multiple needs.

So, option (c) captures the essence most accurately.

53. Option (d) is correct

Assumption I: "No country needs to depend on ecosystems to boost national income."

Invalid: The passage specifically mentions that in developing countries, dependence on ecosystems (like forests) can boost national income. So, the assumption contradicts the passage.

Assumption II: "Resource-rich countries need to share their resources with those of scant resources so as to prevent the degradation of ecosystems."

Invalid: The passage does not mention sharing of resources between countries. It focuses on internal conflicts within countries between conservation, livelihood, and commercial exploitation.

Thus, neither assumption is valid.

54. Option (d) is correct

The central idea of the passage is that:

Green innovation benefits from path-dependence — the more it's done, the easier and cheaper it becomes.

Early and gradual adoption allows economies to adjust smoothly.

Delaying the transition makes it costlier and more disruptive. Thus, the importance of timing — moving early and gradually

— is the key message.

Why not the others?

(a) Economies of scale is mentioned, but it is not the main idea — it's one factor among others.

(b) Path-dependent innovation is important, but again, the passage emphasises timing more.

(c) The passage doesn't mention country size as a factor.

55. Option (c) is correct

Assumption I: Path-dependent green investments will eventually most likely benefit growth as well as public finances in a country like India.

Valid: The passage states that early and sustained green investments bring economic benefits and help economies adjust smoothly. While India is not named, the logic applies to developing countries like India. So, this is a reasonable assumption based on the passage.

Assumption II: If other green technologies follow the same pattern as that of solar energy, there will most likely be an easy green transition.

Valid: The passage gives the example of solar energy becoming cheaper due to learning-by-doing and economies of scale. If other technologies follow this pattern, the transition becomes easier and less costly, supporting this assumption.

56. Option (d) is correct

The passage emphasises that:

Each State or region faces unique climate challenges.

Each area also has specific opportunities (e.g., wind power in some regions, sea-level concerns in coastal states).

Therefore, strategies must be tailored to regional needs and strengths.

Why not the others?

(a) is partly correct but suggests it's *only* the responsibility of each state, ignoring the collaborative role of the Union.

(b) is pessimistic and incorrect — the passage promotes *regional strategies*, not inaction.

(c) places full responsibility on the Union Government, which contradicts the passage's focus on state-specific actions.

57. Option (a) is correct

Assumption I: Green energy production can be linked to integrated with the climate change mitigation and adaptation strategies.

Valid: The passage mentions opportunities like wind power in peninsular/offshore areas, which are forms of green energy. These are clearly linked to mitigation strategies — reducing emissions while adapting to local conditions. So, this assumption is reasonable and supported.

Assumption II: Effects of climate change are much more severe in coastal and mountainous regions.

Invalid: While the passage notes distinctive challenges in coastal and Himalayan areas, it does not claim that these areas face more severe effects compared to others. Each region has unique challenges, but not necessarily *more severe*.

58. Option (d) is correct

The passage clearly states:

Social inequality is the most acute social problem.

Insecurity (not just poverty) is the most acute economic problem.

Even people above the poverty line face economic insecurities.

Many government policies aim to mitigate these insecurities. Hence, (d) directly captures the critical message of the passage.

Why not the others?

(a) talks about the political executive but misses the focus on insecurity.

(b) incorrectly claims that poverty is the primary reason, which the passage does not assert.

(c) is exaggerated and negative, and not aligned with the nuanced analysis in the passage.

59. Option (a) is correct

Assumption I: People above the poverty line also are prone to suffer from anxiety about economic insecurity.

Valid: The passage explicitly states that even those just above the poverty line face multiple economic insecurities (related to health, wealth, jobs, markets). So, this assumption is directly supported.

Assumption II: Eradication of poverty can result in peace and social equality in the country.

Invalid: The passage does not make any such claim. It mentions social inequality and economic insecurity, but does not say that removing poverty alone will lead to peace and equality.

60. Option (a) is correct

The passage emphasises that:

Agriculture in India never experienced high growth, unlike the non-agricultural sector.

Agricultural growth peaked in the 1980s and then stagnated. Non-agricultural sectors, however, grew steadily through the decades.

This contrast suggests that economic growth and reforms benefited non-agricultural sectors more effectively and faster than agriculture — which supports option (a).

Why not the others?

(b) Green Revolution is not discussed or assessed in the passage.

(c) Mechanisation and modern farming are not mentioned.

(d) Rural-to-urban migration is not mentioned or implied as the cause of stagnation.

61. Option (d) is correct

The passage does not mention or suggest that adopting largescale commercial crops or corporate farming (Assumption I) would reduce the divergence.

It also does not mention free insurance or heavy subsidies for inputs (Assumption II) as solutions.

The passage simply states the fact of stagnation in agriculture growth compared to non-agriculture but does not propose any specific measures.

Therefore, neither assumption is directly supported by the passage.

62. Option (a) is correct

The passage highlights that:

Handlooms are traditionally linked to a single, linear notion of culture.

This narrow narrative is contested, as many identities have been historically ignored or stifled.

Because of this limited framing, large sections of the population ignore handloom.

Therefore, the author suggests rethinking or freeing the handloom sector from this limited cultural narrative.

Why not the others?

(b) Focuses only on preservation through state support, ignoring the contestation and exclusion mentioned.

(c) Talks about modernisation and organisation, which the passage does not discuss.

(d) Suggests converting handloom to machine-made, which contradicts the idea of preserving tradition and identity.

63. Option (d) is correct

Assumption I: The passage mentions that State support for handlooms exists and is based on the idea of preserving tradition. It does not say that State's involvement is unnecessary. So, this assumption is not valid. Assumption II: The passage does not claim that handloom products are no longer appealing or attractive. It discusses how the traditional narrative limits its appeal to certain sections, but not that handloom products themselves have lost appeal. So, this assumption is not valid.

64. Option (d) is correct

The passage stresses the need for moving beyond traditional exam-focused teaching to more critical, independent, and multidisciplinary learning. It emphasises that higher education should focus on how to think, not what to think, and that teaching needs to be re-invented.

(a) is not mentioned.

(b) is not the main idea; the passage talks about higher education's role, not government control.

(c) is extreme and not supported; it doesn't say classroom learning should be done away with, but rather reimagined.

65. Option (a) is correct

Assumption I: The passage emphasises that teaching and learning need to change to meet new societal and future work demands, implying higher education must evolve. So, this assumption is valid.

Assumption II: There is no mention of funding or resource allocation in the passage, so this assumption is not valid.

66. Option (b) is correct

The passage discusses how converting plant-based food into animal-based food is inefficient, with only a small percentage of calories fed to animals being recovered by humans. This highlights the inefficiency of animal-based food production compared to direct consumption of grains and legumes.

(a) is not directly stated or implied.

(c) suggests a dietary recommendation not explicitly mentioned.

(d) talks about inevitability, which is not the main focus.

67. Option (b) is correct

Assumption I: The passage does not mention or imply anything about the food manufacturing and processing industries aligning their objectives, so this assumption is not valid.

Assumption II: The passage clearly states that wealthier societies convert more plant-based food into animal feed, which is inefficient and leads to calorie loss, so this assumption is valid.

68. Option (b) is correct

The passage emphasises that reducing household emissions requires behavioural changes, which in turn need incentives provided by companies and governments. It highlights the role of incentives in encouraging low-carbon choices.

(a) is too narrow; the passage says only half the reduction can come from demand-side (households).

(c) is partly true but misses the focus on behavioural change and incentives.

(d) is not mentioned.

69. Option (a) is correct

Assumption I: The passage states that supply-side investments (by companies and governments) help make low-carbon options cheaper and widely available, which can encourage low-carbon behaviour. So, this assumption is valid. Assumption II: The passage does not say people are incapable of adapting low-carbon behaviour without government or company involvement; it suggests incentives help but doesn't claim people can't adapt on their own. So, this assumption is not valid.

70. Option (c) is correct

The passage highlights the importance of reusing materials (like battery components) to manage resource scarcity, complex supply chains, and environmental concerns. This aligns well with the idea of a circular economy, which focuses on recycling and reusing materials for sustainability.

(a) is too narrow and absolute.

(b) is a strong recommendation but not directly stated as immediate action.

(d) is too extreme, suggesting it's the only option.

71. Option (b) is correct

Assumption I: The passage does not state that automobile factories currently operate as examples of the circular economy. It suggests that used batteries *should* be sent back to factories for material recovery, implying this is a goal rather than a current reality. So, I is not valid.

Assumption II: The passage promotes reusing materials and implies that this supports sustainable growth, meaning economic growth can be compatible with circular use of resources. So, II is valid.

72. Option (b) is correct

The passage highlights the risk that genetically refined crops, which lack genetic diversity, may be vulnerable to new or worsening plant diseases caused by climate change, threatening food security. It focuses on the risk of overdependence on such crops rather than just the general effect of climate change on productivity.

(a) is too broad.

(c) is off-topic.

(d) is not suggested in the passage.

73. Option (c) is correct

Assumption I is valid because the passage mentions that changes in climate may make some plant infections more common in all climatic zones, implying potential migration or spread.

Assumption II is valid because the passage implies that the lack of genetic variation in current crops is a problem, so understanding wild relatives (which have more genetic diversity) would help strengthen food security.

74. Option (d) is correct

The passage emphasises that a wise statesman learns more from opponents than supporters because opponents point out dangers. It stresses the importance of having opposition to keep the government reasonable and prevent arbitrary rule. This highlights the crucial role of opposition in maintaining political balance and good governance in a democracy.

75. Option (d) is correct

Assumption I is not valid because the passage does not say a strong opposition is needed *only* if the Head of Government is indifferent; rather, it says a balanced opposition is always necessary to prevent arbitrary administration.

Assumption II is not valid because the passage emphasises a balanced opposition, not an overly aggressive one that could be revolutionary or irreconcilable. The opposition should keep the government reasonable, not hostile or extreme.

76. Option (a) is correct

The author emphasizes that corporate capitalism boosts economic growth (job creation, industrialization, competitiveness) and provides resources (tax revenue) for state welfare and democratic objectives (like equality and a level playing field).

(b) too narrowly focused on "political objectives".

(c) too extreme and absolute compared to the passage's more balanced tone.

(d) mutual dependence is too strong a claim - the passage does not suggest a two-way dependence.

77. Option (c) is correct

The passage clearly supports both assumptions. It states that corporate capitalism generates jobs (validating Assumption I) and leads to increased state revenues, which can be used for the welfare of marginalised groups (supporting Assumption II). Therefore, both assumptions are valid.

78. Option (c) is correct

The passage talks about voluntary associations acting as a buffer between individuals and the State. This implies these associations help individuals connect, collaborate, and engage in society, protecting them from the overpowering influence of the State by fostering participation and collective action.

79. Option (b) is correct

The passage explains that a single inflation number is an aggregate that average price rises across different commodities and services with assigned weights, but since consumption patterns vary greatly among different income groups, the composite inflation number does not accurately reflect the price rise experienced by individuals or for specific items.

80. Option (d) is correct

The passage emphasises that trust involves vulnerability and risk, especially in entrepreneurship and global markets, but it is essential for economic and social interactions.