

PAPER-II (CSAT)

- In the sum
 $\otimes + 1 \otimes + 5 \otimes + \otimes \otimes + \otimes \otimes + \otimes \otimes = 1 \otimes \otimes$
for which digit does the symbol \otimes stand?
(a) 2 (b) 3
(c) 4 (d) 5
- If you have two straight sticks of length 7.5 feet and 3.25 feet, what is the minimum length can you measure?
(a) 0.05 foot (b) 0.25 foot
(c) 1 foot (d) 3.25 feet
- A simple mathematical operation in each number of the sequence 14, 18, 20, 24, 30, 32, ... results in a sequence with respect to prime numbers. Which one of the following is the next number in the sequence?
(a) 34 (b) 36
(c) 38 (d) 40
- One page is tom from a booklet whose pages are numbered in the usual manner starting from the first page as 1. The sum of the numbers on the remaining pages is 195. The tom page contains which of the following numbers?
(a) 5, 6 (b) 7, 8
(c) 9, 10 (d) 11, 12
- Consider the following arrangement that has some missing letters :
abab_b_bcb_dcdcded_d
The missing letters which complete the arrangement are
(a) a, b, c, d (b) a, b, d, e
(c) a, c, c, e (d) b, c, d, e
- Let $A3BC$ and $DE2F$ be four-digit numbers where each letter represents a different digit greater than 3. If the sum of the numbers is 15902, then what is the difference between the values of A and D ?
(a) 1 (b) 2
(c) 3 (d) 4
- Two Statements $S1$ and $S2$ are given below followed by a Question:
 $S1$: There are not more than two figures on any page of a 51-page book.
 $S2$: There is at least one figure on every page.
Question:
Are there more than 100 figures in that book?
Which one of the following is correct in respect of the above Statements and the Question?
(a) Both $S1$ and $S2$ are sufficient to answer the Question, but neither $S1$ alone nor $S2$ alone is sufficient to answer the Question.
(b) $S1$ alone is sufficient to answer the Question.
(c) $S1$ and $S2$ together are not sufficient to answer the Question.
(d) $S2$ alone is sufficient to answer the Question.

8. Consider the following data:

	Average marks in English	Average marks in Hindi
Girls	9	8
Boys	8	7
Overall average marks	8.8	x

What is the value of x in the above table?

- (a) 7.8 (b) 7.6
(c) 7.4 (d) 7.2
9. A family of two generations consisting of six members P, Q, R, S, T and U has three males and three females. There are two married couples and two unmarried siblings. U is P 's daughter and Q is R 's mother-in-law. T is an unmarried male and S is a male. Which one of the following is correct?
(a) R is U 's husband. (b) R is S 's wife.
(c) S is unmarried. (d) None of the above
10. If in a particular year 12th January is a Sunday, then which one of the following is correct?
(a) 15th July is a Sunday if the year is a leap year.
(b) 15th July is a Sunday if the year is not a leap year.
(c) 12th July is a Sunday if the year is a leap year.
(d) 12th July is not a Sunday if the year is a leap year.
11. A man walks down the backside of his house straight 25 metres, then turns to the right and walks 50 metres again; then he turns towards left and again walks 25 metres. If his house faces to the East, what is his direction from the starting point?
(a) South-East (b) South-West
(c) North-East (d) North-West
12. Two Statements are given followed by two Conclusions:
Statements:
All numbers are divisible by 2.
All numbers are divisible by 3.
Conclusion-I:
All numbers are divisible by 6.
Conclusion-II:
All numbers are divisible by 4.
Which of the above Conclusions logically follows/follow from the two given Statements?
(a) Only Conclusion-I
(b) Only Conclusion-II
(c) Neither Conclusion-I nor Conclusion-II
(d) Both Conclusion-I and Conclusion-II
13. Two Statements are given followed by two Conclusions:
Statements:
All cats are dogs.
All cats are black.
Conclusion-I:
All dogs are black.

Conclusion-II:

Some dogs are not black.

Which of the above Conclusions logically follows/follow from the two given Statements, disregarding commonly known facts?

- (a) Only Conclusion-I
(b) Only Conclusion-II
(c) Neither Conclusion-I nor Conclusion-II
(d) Both Conclusion-I and Conclusion-II
14. Consider the following sequence of numbers
5 1 4 7 3 9 8 5 7 2 6 3 1 5 8 6 3 8 5 2 2 4 3 4 9 6
How many odd numbers are followed by the odd number in the above sequence?
(a) 5 (b) 6
(c) 7 (d) 8
15. A is 16th from the left end in a row of boys and V is 18th from the right end. G is 11th from A towards the right and 3rd from V towards the right end. How many boys are there in the row?
(a) 40 (b) 41
(c) 42 (d) Cannot be determined due to insufficient data
16. Three Statements S1, S2 and S3 are given below followed by a Question:
S1 : C is younger than D, but older than A and B.
S2 : D is the oldest.
S3 : A is older than B.
Question:
Who among A, B, C and D is the youngest?
Which one of the following is correct in respect of the above Statements and the Question?
(a) S1 alone is sufficient to answer the Question.
(b) S1 and S2 together are sufficient to answer the Question.
(c) S2 and S3 together are sufficient to answer the Question.
(d) S1 and S3 together are sufficient to answer the Question.
17. How many integers are there between 1 and 100 which have 4 as a digit but are not divisible by 4?
(a) 5 (b) 11
(c) 12 (d) 13
18. Let x, y be the volumes; m, n be the masses of two metallic cubes P and Q respectively. Each side of Q is two times that of P and mass of Q is two times that of P . Let $u = m/x$ and $v = n/y$. Which one of the following is correct?
(a) $u = 4v$ (b) $u = 2v$
(c) $v = u$ (d) $v = 4u$
19. The average age of a teacher and three students is 20 years. If all the three students are of same age and the difference between the age of the teacher and each student is 20 years, then what is the age of the teacher?
(a) 25 years (b) 30 years
(c) 35 years (d) 45 years

20. A person bought a car and sold it for Rs. 3,00,000. If he incurred a loss of 20%, then how much did he spend to buy the car?
- (a) Rs. 3,60,000 (b) Rs. 3,65,000
(c) Rs. 3,70,000 (d) Rs. 3,75,000

Directions for the following 6 (six) items:

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

PASSAGE-I

In India, over the, last decade or so, labour has been departing agriculture, but is only going to construction and unregistered manufacturing which are not markedly better jobs. Services, where labour tends to be most productive, are not generating the additional jobs the country needs. India will need 24 million or so jobs over the next decade. The new sector, e-commerce, can at best close only half the jobs gap. Only those sectors that drive domestic demand such as health and education can comfortably fill the other half.

21. Which one of the following is best implied in the passage?
- (a) Strong measures need to be taken to reduce the rural to urban migration of labour.
(b) The working condition in construction and unregistered manufacturing needs to be improved.
(c) Service sector has been reducing the problem of unemployment.
(d) Increased social sector spending is imperative for large-scale job creation.

PASSAGE-2

In India, the current focus on the right to privacy is based on some new realities of the digital age. A right is a substantive right only if it works in all situations, and for everyone. A right to free expression for an individual about her exploitation, for instance, is meaningless without actual availability of security that guarantees that private force cannot be used to toward this right. The role of the State, therefore, is not just to abstain from preventing rightful free expression, but also to actively ensure that private parties are not able to block it.

22. On the basis of the above passage, the following assumptions have been made:
1. State should have some institutions to ensure its appropriate role in a digital society.
 2. State should ensure that private parties do not violate the citizens' right to privacy.
 3. Digital economy is not compatible with the idea of not violating the citizens' privacy.
- Which of the above assumptions is/are valid?
- (a) 1 and 2 (b) 3 only
(c) 1 and 3 (d) 2 only

PASSAGE-3

One of the biggest ironies around water is that it comes from rivers and other wetlands. Yet it is seen as divorced from them. While water is used as a resource, public policy does not always grasp that it is a part of the natural ecosystem. Efforts at engineering water systems are thus efforts at augmenting water supply rather than strengthening the capacities of ecological systems.

23. Which one of the following is the most logical and rational inference that can be made from the above passage?
- (a) Rivers and other wetlands should be protected under Ramsar Convention.
(b) Engineering water systems should be modernized and further augmented.
(c) Wetlands need to be reinforced as more than just open sources of water.
(d) Water supply should not be free of cost so as to prevent its misuse or overuse.

PASSAGE-4

Asset allocation is the most important investment decision we will ever make, and sadly, most of us do not give that decision the importance it deserves. We are adamant about seeking predictability with our future. We tend to think of investing in risky assets as extremely volatile and value eroding. We also dislike fluctuating returns and the loss of control of investment. We think our money is best left idle, unproductive but safe. There is no asset that is risk-free. We could lose our jobs, our homes can lose value, our banks can go bankrupt, our bonds can default, the government can collapse and companies we chose fondly may cease to exist. But we cannot live life assuming that all these extreme events are waiting to happen, and all at the same time. All these extreme forms of risks we know will not manifest at the same time.

24. Which one of the following statements best implies the suggestion given by the author of the passage?
- Distribute your wealth across different kinds of assets so that your risks would be minimized.
 - Risk-taking behaviour should be a necessary component of your personality if you want to generate wealth.
 - While making investments, find a trustworthy asset management organization which would manage your wealth for you.
 - You should know that investing your money is a risky business.

PASSAGE-5

Although most of the Genetically Modified (GM) crops cultivated now are genetically engineered for a single trait, in future, crops genetically engineered for more than one trait will be the norm. Thus, biotechnology's role in agriculture and the regulation of the same cannot be understood solely in the context of the current generation of GM crops. Instead, there is a need to take a comprehensive look, taking into account various aspects, including socio-economic impacts, so that the potential of the technology can be harnessed, while minimizing negative impacts. Given the importance of biotechnology in developing varieties that can help in climate change mitigation and adaptation, not using biotechnology as a part of the climate change action plan cannot be an option. Domestic regulation of biotechnology cannot be viewed in isolation of trade policy and obligations under various international treaties and conventions.

25. With reference to the above passage the following assumptions have been made:
- Biotechnology regulation is an evolving process.
 - Participation of people is needed in policy decisions regarding biotechnology regulation.
 - Biotechnology regulation should take into account socio-economic aspects in decision-making,
 - Wider involvement of political executive in biotechnology regulation improves its effectiveness in dealing with the country's trade policies and international obligations.

Which of the above assumptions are valid?

- 1, 2 and 4 only
 - 1 and 3 only
 - 2, 3 and 4 only
 - 1, 2, 3 and 4
26. Which one of the following statements best implies the crux of the passage?
- Precautionary principle is not given importance in current debate on developing GM crops.
 - Biotechnology is not currently used in climate change mitigation and adaptation mechanisms.
 - Biotechnology's role is not confined to the current priorities of developing GM crops.
 - The negative impacts of biotechnology are not properly understood.
27. How many zeroes are there at the end of the following product?
- $$1 \times 5 \times 10 \times 15 \times 20 \times 25 \times 30 \times 35 \times 40 \times 45 \times 50 \times 55 \times 60$$
- 10
 - 12
 - 14
 - 15

28. Let XYZ be a three-digit number, where $(X+Y+Z)$ is not a multiple of 3. Then $(XYZ + YZX + ZXY)$ is not divisible by
- (a) 3 (b) 9
(c) 37 (d) $(X + Y + Z)$
29. Let p, q, r and s be natural numbers such that
 $p - 2016 = q + 2017 = r - 2018 = s + 2019$
Which one of the following is the largest natural number?
- (a) p (b) q
(c) r (d) s
30. How many five-digit prime numbers can be obtained by using all the digits 1, 2, 3, 4 and 5 without repetition of digits?
- (a) Zero (b) One
(c) Nine (d) Ten

Directions for the following 7 (seven) items:

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

PASSAGE-I

Private investment in general is volatile. Foreign private investment is more volatile because the available investment avenues are significantly greater (i.e., the entire world). Therefore, the responsibility of providing employment cannot be left to Foreign Direct Investment (FDI). The current FDI inflows are volatile over time and across sectors and regions, which is a necessary consequence of their search for the highest returns. The adverse consequences are unstable employment and an accentuation of income and regional inequalities. A probable positive consequence of foreign investment is the inflow of new technology and its subsequent diffusion. However, the technology diffusion is not at all certain because the existing state of physical and human capital in India may prove inadequate for the diffusion.

31. With reference to the above passage, the following assumptions have been made:
1. Relying on foreign investment in the long run is not an economically sound policy.
 2. Policies must be undertaken to reduce volatility in foreign private investment.
 3. Policies must be undertaken to strengthen domestic private investment.
 4. Public investment should be given priority over private investment.
 5. Substantial public investment in education and health should be undertaken.
- Which of the above assumptions is/are valid?
- (a) 1, 2 and 4 (b) 1, 3 and 5
(c) 2, 4 and 5 (d) 3 only

PASSAGE-2

Many opportunities to harness the highly skewed, seasonal and spatial distribution of monsoon flows, which occur in a four-month period from June to September annually, have been lost. Since these few months account for most of the rainfall and consequent freshwater availability, the need for holding rainwater in reservoirs, for subsequently releasing it for use over the year, is a necessity nobody can afford to overlook. Climate change will continue to affect weather conditions and create water shortages and excesses. While millions suffer from droughts and floods, waters in the country's many rivers flow unutilized, and are discharged into the sea every year.

46. What is the remainder when $51 \times 27 \times 35 \times 62 \times 75$ is divided by 100?
(a) 50 (b) 25
(c) 5 (d) 1
47. A sum of Rs. 2,500 is distributed among X, Y and Z in the ratio $\frac{1}{2} : \frac{3}{4} : \frac{5}{6}$. What is the difference between the maximum share and the minimum share?
(a) Rs. 300 (b) Rs. 350
(c) Rs. 400 (d) Rs. 450
48. For what value of n , the sum of digits in the number $(10^n + 1)$ is 2?
(a) For $n = 0$ only (b) For any whole number n
(c) For any positive integer n only (d) For any real number n
49. In a class, there are three groups A, B and C. If one student from group A and two students from group B are shifted to group C, then what happens to the average weight of the students of the class?
(a) It increases. (b) It decreases.
(c) It remains the same. (d) No conclusion can be drawn due to insufficient data.
50. How many different sums can be formed with the denominations Rs. 50, Rs. 100, Rs. 200, Rs. 500 and Rs. 2,000 taking at least three denominations at a time?
(a) 16 (b) 15
(c) 14 (d) 10
51. A person X can complete 20% of work in 8 days and another person Y can complete 25% of the same work in 6 days. If they work together, in how many days will 40% of the work be completed?
(a) 6 (b) 8
(c) 10 (d) 12
52. A car travels from a place X to place Y at an average speed of v km/hr, from Y to X at an average speed of $2v$ km/hr, again from X to Y at an average speed of $3v$ km/hr and again from Y to X at an average speed of $4v$ km/hr. Then the average speed of the car for the entire journey
(a) is less than v km/hr (b) lies between v and $2v$ km/hr
(c) lies between $2v$ and $3v$ km/hr (d) lies between $3v$ and $4v$ km/hr
53. Consider the following statements :
1. The minimum number of points of intersection of a square and a circle is 2.
2. The maximum number of points of intersection of a square and a circle is 8.
Which of the above statements is/are correct?
(a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
54. A man takes half time in rowing a certain distance downstream than upstream. What is the ratio of the speed in still water to the speed of current?
(a) 1 : 2 (b) 2 : 1
(c) 1 : 3 (d) 3 : 1

55. How many pairs of natural numbers are there such that the difference of whose squares is 63?
(a) 3 (b) 4
(c) 5 (d) 2
56. Which one of the following will have minimum change in its value if 5 is added to both numerator and the denominator of the fractions $\frac{2}{3}$, $\frac{3}{4}$, $\frac{4}{5}$ and $\frac{5}{6}$?
(a) $\frac{2}{3}$ (b) $\frac{3}{4}$
(c) $\frac{4}{5}$ (d) $\frac{5}{6}$
57. A digit $n > 3$ is divisible by 3 but not divisible by 6. Which one of the following is divisible by 4?
(a) $2n$ (b) $3n$
(c) $2n+4$ (d) $3n+1$
58. If 1 litre of water weighs 1 kg, then how many cubic millimetres of water will weigh 0.1 gm?
(a) 1 (b) 10
(c) 100 (d) 1000
59. A vessel full of water weighs 40 kg. If it is one-third filled, its weight becomes 20 kg. What is the weight of the empty vessel?
(a) 10 kg (b) 15 kg
(c) 20 kg (d) 25 kg
60. A frog tries to come out of a dried well 4.5 m deep with slippery walls. Every time the frog jumps 30 cm, slides down 15 cm. What is the number of jumps required for the frog to come out of the well?
(a) 28 (b) 29
(c) 30 (d) 31

Directions for the following 6 (six) items :

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

PASSAGE-1

Spanish ships in the late 16th century first brought the potato tuber from South America to Europe whereby in the early 19th century, it had become a reliable backup to cereal crops, particularly in the cold, rain-soaked soils of Ireland. The Irish were soon almost wholly dependent on the potato as their staple food. And they were planting primarily one prodigious variety the 'Lumper' potato, whose genetic frailty would be cruelly exposed by the fungus '*Phytophthora infestans*'. In 1845, spores of the deadly fungus began spreading across the country, destroying nearly all the Lumpers in its path. The resulting famine killed or displaced millions.

61. Which one of the following statements *best reflects the critical message* of the passage?
(a) For introducing any foreign plant into a country, the soil and climate conditions of that country should be suitable.
(b) As a staple food of a country, tuber crops like potato cannot replace cereal crops.
(c) Some of the fungal infections of plants cannot be prevented or stopped from spreading across large areas.
(d) Relying on a homogeneous food source is not desirable.

- (a) 492 (b) 468
(c) 262 (d) 246

69. What is the missing term @ in the following?

ACPQ : BESU :: MNGI : @

- (a) NPJL (b) NOJM
(c) NPIL (d) NPJM

70. What is the largest number among the following?

- (a) $\left(\frac{1}{2}\right)^{-6}$ (b) $\left(\frac{1}{4}\right)^{-3}$
(c) $\left(\frac{1}{3}\right)^{-4}$ (d) $\left(\frac{1}{3}\right)^{-2}$

Directions for the following 6 (six) items:

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

PASSAGE- I

Bank credit to the industrial sector has started shrinking. Its decline has been a serious concern as credit growth is essential to revive investment. The problem's origins lie in the incomplete reforms of the last 25 years. An institutional change that should have followed the 1991 reforms should have been setting up of a resolution corporation for banks. In a market economy with booms and busts, banks should be allowed to be set up and to fail. Today, we cannot shut down banks because there is no proper system to shut them down. Weak loss-making banks continue to need more capital.

71. Which one of the following is the *most logical and rational inference* that can be made from the above passage?
- (a) Indian banking system is not able to help the country in its economic growth.
(b) Economic reforms that started in 1991 have not able to helped in improving the economy to expected levels.
(c) India lacks the institutional mechanism to deal with the failure of banks.
(d) Encouraging the foreign investments in our industrial sector is a good alternative to this sector's dependence on banks for credit.

PASSAGE- 2

India has tremendous potential for solar energy. We all realize that we have to stop burning fossil fuels to meet our energy needs. But certain renewable resources are still going through their cost curves and learning curves to get the required amount of output. The Indian Government has strongly committed to its targets of reducing emissions by 33 percent by 2030, and towards a gas-based economy and has also invested heavily in renewable energy. However, business houses are wary of investing too heavily in renewable energy at a time when the technology is not yet ready.

72. Which one of the following is the most logical and rational inference that can be made from the above passage?
- (a) India's commitment to reduce emissions by 33% is unlikely to be achieved.

- (b) India should import gas rather than invest in renewable resources.
- (c) Getting renewable resources to market too soon may be costly.
- (d) India should put in more efforts in the exploration of natural gas.

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

1. Governments often provide inefficient and costly subsidies for technologies that may not be ready in the near future.
2. India's commitment of reducing emissions by 33% by 2030 shall be on the basis of gas-based economy.

Which of the above assumptions is/are valid?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

PASSAGE- 3

Genome editing is different from genome modification. Genome editing typically involves finding the part of a plant genome that could be changed to render it less vulnerable to disease, or resistant to certain herbicides, or to increase yields. Researchers use 'molecular scissors' to dissect the genome and repair it, which is a process that occurs naturally when plants are under attack from diseases and can throw up new mutations that enable the plant to survive future attacks. This evolutionary process can defectively be speeded up now that it is possible to examine plant genomes in detail in laboratories, and create mechanisms through which the relevant genes can be altered very precisely.

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

1. Genome editing does not require the transfer of genes from one plant to another.
2. Through genome editing, the chosen genes can be altered precisely in a manner akin to the natural process that helps plants to adapt to the environmental factors.

Which of the above assumptions is/are valid?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

PASSAGE- 4

Many people understand the connection between solid waste management and health in terms of the consequences of unattended heaps of dry garbage which become home for flies and other vermin. However, there is another aspect that is not well-understood, that is, what happens when unscientific solid waste management combines with poor drainage and dumping of untreated sewage into drains which are meant to carry storm water during rains. The result is choked drains which are full of stagnant water breeding mosquitoes, resulting in the spread of water-borne diseases.

75. In the context of India, which one of the following statements best reflects the critical message of the passage?

- (a) In India, the drainage networks are not separate for sewerage and storm water.
- (b) Urban local bodies do not have enough resources and legislative authority to deal with the problems of waste management.
- (c) Solid waste management should be integrated with the maintenance of drainage and sewerage networks.
- (d) Bad management of solid waste and sewerage systems by our municipalities is the reason for drinking water shortages in our cities.

PASSAGE- 5

In Part III of the Constitution, which assures people certain fundamental rights, Article 25 proclaims that “all persons are equally entitled to freedom of conscience and the right freely to profess, practise and propagate religion”. What people fail to notice is that this proclamation is prefixed with the words “subject to public order, morality, health and to the other provisions of this Part”, which set conditions precedent for the legal protection of religious practices of any community. The closing words of this prefatory rider in Article 25 virtually constitute a subordination clause placing other fundamental rights mentioned in Part III over and above the right to religious freedom. Among those other fundamental rights is the right to equality before law and equal protection of laws - assured at the outset and elaborated in later articles to mean, inter alia, that the State shall not deny equal protection of laws to any person or group of persons on the basis of religion alone.

76. What is the most logical inference from the above passage?
- (a) State shall not interfere with the religious affairs of the citizens.
 - (b) Religious freedom under the Constitution is open to State intervention.
 - (c) Religious freedom of the citizens is not covered under fundamental rights.
 - (d) Religious practices of any community are immune to State laws.
77. How many different 5-letter words (with or without meaning) can be constructed using all the letters of the word ‘DELHI’ so that each word has to start with D and end with I?
- (a) 24
 - (b) 18
 - (c) 12
 - (d) 6
78. A bottle contains 20 litres of liquid A. 4 litres of liquid A is taken out of it and replaced by same quantity of liquid B. Again 4 litres of the mixture is taken out and replaced by same quantity of liquid B. What is the ratio of quantity of liquid A to that of liquid B in the final mixture?
- (a) 4: 1
 - (b) 5: 1
 - (c) 16: 9
 - (d) 17: 8
79. The average score of a batsman after his 50th innings was 46.4. After 60th innings, his average score increases by 2.6. What was his average score in the last ten innings?
- (a) 122
 - (b) 91
 - (c) 62
 - (d) 49
80. As a result of 25% hike in the price of rice per kg, a person is able to purchase 6 kg less rice for Rs. 1,200. What was the original price of rice per kg?
- (a) Rs. 30
 - (b) Rs. 40
 - (c) Rs. 50
 - (d) Rs. 60