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# IPMAT INDORE - 2022

## QUANTITATIVE ABILITY - (SA)

QUESTIONS: 15 (+4/-0)

SECTIONAL TIME: 40 MINUTES

1. The 3rd, 14th and 69<sup>th</sup> terms of an arithmetic progression form three distinct and consecutive terms of a geometric progression. If the next terms of the geometric progression is the  $n^{\text{th}}$  term of the arithmetic progression, then  $n$  equals\_\_\_\_\_.
2. The area enclosed by  $2|x| + 3|y| \leq 6$  is\_\_\_\_\_ sq. units
3. The number of triangles that can be formed by choosing points from 7 points on a line and 5 points on another parallel line is\_\_\_\_\_.
4. If  $\sin \alpha + \sin \beta = \frac{\sqrt{2}}{\sqrt{3}}$  and  $\cos \alpha + \cos \beta = \frac{1}{\sqrt{3}}$ , then the value of  $\left(20 \cos \left(\frac{\alpha - \beta}{2}\right)\right)^2$  is.
5. The sum of the coefficients of all the terms in the expansion of  $(5x - 9)^4$  is \_\_\_\_\_.
6. Aruna purchases a certain number of apples for INR 20 each and a certain number of mangoes for INR 25 each. If she sells all the apples at 10% profit and all the mangoes at 20% loss, overall she makes neither profit nor loss. Instead, if she sells all the apples at 20% loss and all the mangoes at 10% profit, overall she makes a loss of INR 150. Then the number of apples purchased by Aruna is\_\_\_\_\_.
7. If  $\log_{x^2} y + \log_{y^2} x = 1$  and  $y = x^2 - 30$ . Then the value of  $x^2 + y^2$  is \_\_\_\_\_.
8. Let  $P(X)$  denote power set of a set  $X$ . If  $A$  is the null set, then the number of elements in  $P(P(P(P(A))))$  is\_\_\_\_\_.
9. A new sequence is obtained from the sequence of positive integers (1, 2, 3,...) by deleting all the perfect squares. Then the 2022nd term of the new sequence is\_\_\_\_\_.
10. If  $A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix}$ , Then the absolute value of the determinant of  $(A^0 + A^6 + A^3 + A)$  is \_\_\_\_\_.
11. The numbers  $-16, 2^{x+3} - 2^{2x-1} - 16, 2^{2x-1} + 16$  are in an arithmetic progression. Then  $x$  equals \_\_\_\_\_.
12. Given that  $f(x) = |x| + 2|x - 1| + |x - 2| + |x - 4| + |x - 6| + 2|x - 10|$ ,  $x \in (-\infty, \infty)$ , the minimum value of  $f(x)$  is\_\_\_\_\_.
13. When Geeta increases her speed from 12 km/hr to 20 km/hr, she takes one hour less than the usual time to cover the distance between her home and office. The distance between her home and office is\_\_\_\_\_ km.
14. Let 50 distinct positive integers be chosen such that the highest among them is 100, and the average of the largest 25 integers among them exceeds the average of the remaining integers by 50. Then the maximum possible value of the sum of all the 50 integers is \_\_\_\_\_.
15. Mrs and Mr Sharma. and Mrs and Mr Ahuja along with four other persons are to be seated at a round table for dinner. If Mrs and Mr Sharma are to be seated next to each other, and Mrs and Mr Ahuja are not to be seated next to each other, then the total number of seating arrangements is \_\_\_\_\_.

## QUANTITATIVE ABILITY - (MCQ)

QUESTIONS: 30 (+4/-1)

SECTIONAL TIME: 40 MINUTES

16. The sum of the squares of all the roots of the equation  $x^2 + |x + 4| + |x - 4| - 35 = 0$  is  
(a) 50 (b) 74 (c) 175 (d) 148
17. Let  $A = \{1, 2, 3\}$  and  $B = \{a, b\}$ . Assuming all relations from set A to set B are equally likely, what is the probability that a relation from A to B is also a function?  
(a)  $\frac{1}{2}$  (b)  $\frac{3^2}{2^6}$  (c)  $\frac{1}{8}$  (d) 1
18. If the five-digit number abcde is divisible by 6, then which of the following numbers is not necessarily divisible by 6?  
(a) edcba (b) eee (c) bbadcacede (d) cdbae
19. The set of real values of x for which the inequality  $\log_{27} 8 \leq \log_3 x < 9^{\frac{1}{\log_2 3}}$  hold  
(a) [2,81] (b) [2,27] (c) [2,81] (d) (2,27]
20. Suppose a, b and c are integers such that  $a > b > c > 0$ , and  $A = \begin{bmatrix} a & b & c \\ b & c & a \\ c & a & b \end{bmatrix}$ . Then the value of the determinant of A  
(a) can be positive or negative (b) is positive  
(c) is negative (d) is zero
21. The lengths of the sides of a triangle are x, 21 and 40, where x is the shortest side. A possible value of x is  
(a) 16 (b) 18 (c) 20 (d) 19
22. If  $A = \begin{bmatrix} 1 & 0 \\ \frac{1}{2} & 0 \end{bmatrix}$ , then  $A^{2022}$  is  
(a)  $\begin{bmatrix} 1 & 0 \\ 2022 & 0 \end{bmatrix}$  (b)  $\begin{bmatrix} 1 & 0 \\ 2011 & 0 \end{bmatrix}$  (c)  $\begin{bmatrix} 1 & 0 \\ \frac{1}{2^{2022}} & 0 \end{bmatrix}$  (d) None of these
23. The sum of the first 15 terms in an arithmetic progression is 200, while the sum of the next 15 terms is 350. Then the common difference is  
(a)  $\frac{7}{9}$  (b)  $\frac{1}{3}$  (c)  $\frac{4}{9}$  (d)  $\frac{2}{3}$
24. The cost of a piece of jewellery is proportional to the square of its weight. A piece of jewellery weighing 10 grams is INR 3600. The cost of a piece of jewellery of the same kind weighing 4 grams is  
(a) INR 576 (b) INR 1220 (c) INR 1440 (d) INR 600
25. When the square of the difference of two natural numbers is subtracted from the square of the sum of the same two numbers and the result is divided by four, we get  
(a) the HCF of the two numbers  
(b) the LCM of the two numbers  
(c) the square of the product of the two numbers  
(d) the product of the LCM and HCF of the two numbers
26. In a 400-metre race, Ashok beats Bipin and Chandan respectively by 15 seconds and 25 seconds. If Ashok beats Bipin by 150 metres, by how many metres does Bipin beat Chandan in the race?  
(a) 150 (b) 50 (c) 80 (d) 100
27. The set of all possible values of f(x) for which  $(81)^x + (81)^{f(x)} = 3$  is  
(a)  $(-\infty, 0.25)$  (b) (3,4) (c) (0.25,3) (d)  $(-\infty, 4)$
28. Let A and B be two sets such that the Cartesian product  $A \times B$  consists of four elements. If two elements of  $A \times B$  are (1, 4) and (4, 1), then  
(a)  $\emptyset \in A \times B$  (b)  $A \times B = B \times A$  (c) None of these (d)  $A \times B \neq B \times A$

29. In a right-angled triangle ABC, the hypotenuse AC is of length 13 cm. A line drawn connecting the midpoints D and E of sides AB and AC is found to be 6 cm in length. The length of BC is  
 (a) 8 cm (b) 5 cm (c)  $2\sqrt{3}$  cm (d) 12 cm
30. In a bowl containing 60 ml orange juice, 40 ml of water is poured. Thereafter, 100 ml of apple juice is poured to make a fruit punch. Madhu drinks 50 ml of this fruit punch and comments that the proportion of orange juice needs to be higher for better taste. How much orange juice should be poured into the fruit punch that remained, in order to bring up the level of orange juice to 50 percentage?  
 (a) 60 ml (b) 80 ml (c) 40 ml (d) 100 ml
31. In a room, there are n persons whose average height is 160 cm. If m more persons, whose average height is 172 cm, enter the room, then the average height of all persons in the room becomes 164 cm. Then m : n is  
 (a) 1 : 3 (b) 2 : 1 (c) 1 : 2 (d) 3 : 1
32. For  $0 < \theta < \frac{\pi}{4}$ , let  $a = ((\sin\theta)^{\sin\theta})(\log_2 \cos\theta)$ ,  $b = ((\cos\theta)^{\sin\theta})(\log_2 \sin\theta)$ ,  $c = ((\sin\theta)^{\cos\theta})(\log_2 \cos\theta)$  and  $d = ((\sin\theta)^{\sin\theta})(\log_2 \sin\theta)$ . Then, the median value in the sequence a, b, c, d is  
 (a)  $\frac{c+d}{2}$  (b)  $\frac{a+d}{2}$  (c)  $\frac{a+c}{2}$  (d)  $\frac{b+c}{2}$
33. If  $f(x^2 + f(y)) = xf(x) + y$  for all non-negative integers x and y, then the value of  $[f(0)]^2 + f(0)$  equals \_\_\_\_\_.  
 (a) 0 (b) 6 (c) 2 (d) 1
34. The curve represented by the equation  

$$\frac{x^2}{\sin\sqrt{2} - \sin\sqrt{3}} + \frac{y^2}{\cos\sqrt{2} - \cos\sqrt{3}} = 1$$
 (a) a hyperbola with the foci on the x-axis (b) an ellipse with the foci on the x-axis  
 (c) an ellipse with the foci on the y-axis (d) a hyperbola with the foci on the y-axis
35. The number of four-digit integers which are greater than 1000 and divisible by both 2 and 3, but not by 5, is  
 (a) 1334 (b) 1500 (c) 1666 (d) 1200
36. Ayesha is standing atop a vertical tower 200m high and observes a car moving away from the tower on a straight horizontal road from the foot of the tower. At 11:00 AM, she observes the angle of depression of the car to be  $45^\circ$ . At 11:02 AM, she observes the angle of depression of the car to be  $30^\circ$ . The speed at which the car is moving is approximately  
 (a) 6.3 km per hour (b) 4.39 km per hour  
 (c) 8.45 km per hour (d) 10.6 km per hour
37. If one of the factors of the number  $3^7 2^8 17^3$  is randomly chosen, then the probability that the chosen factor will be a perfect square is.  
 (a)  $\frac{5}{32}$  (b)  $\frac{5}{36}$  (c)  $\frac{3}{40}$  (d)  $\frac{1}{12}$
38. The value of k for which the following lines  
 $x - y - 1 = 0$   
 $2x + 3y - 12 = 0$   
 $2x - 3y + k = 0$   
 are concurrent is  
 (a) -1 (b) 12 (c) 0 (d) 1
39. A set of all possible values the function  $f(x) = \frac{x}{|x|}$ , where  $x \neq 0$ , takes is  
 (a)  $\{1, -1\}$  (b)  $\{1, 0\}$  (c)  $\{1, 0, -1\}$  (d)  $\{1\}$
40. In how many ways can the letters of the word **MANAGEMENT** be arranged such that no two vowels appear together?  
 (a) 21600 (b) 25200 (c) 37800 (d) 75600

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**Directions (Q.41-Q.45):** A showroom is open on all seven days of the week throughout the year. There are five employees Alex, Bhabha, Cathy, Dilip and Ethan who work in the showroom. Every day except Sunday, two employees are required while on Sunday three employees need to work. Every employee works for three days in a week. Some additional information is also provided:

- Every employee works on two consecutive days while the third day is not consecutive.
- Alex and Dilip work together on Tuesday and Wednesday while the other working day differs for them.
- Neither Bhabha nor Cathy works with Alex on any day.
- Cathy does not work either on Saturday or on Monday.

41. Number of days Bhabha and Cathy work together in a week is  
(a) 0                                      (b) 1                                      (c) 3                                      (d) 2
42. The consecutive days on which Ethan works are  
(a) Thursday and Friday                                      (b) Sunday and Monday  
(c) Saturday and Sunday                                      (d) Friday and Saturday
43. Which among the following employees do not work together on any of the days?  
(a) Cathy and Dilip                                      (b) Bhabha and Dilip  
(c) Dilip and Ethan                                      (d) Bhabha and Ethan
44. Employees who work on Sunday are  
(a) Alex, Dilip and Ethan                                      (b) Bhabha, Cathy and Dilip  
(c) Bhabha, Cathy and Ethan                                      (d) Cathy, Dilip and Ethan
45. One of the days Alex works on is  
(a) Saturday                                      (b) Friday                                      (c) Monday                                      (d) Sunday

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## VERBAL ABILITY

QUESTIONS: 45 (+4/-1)

SECTIONAL TIME 40 MINUTES

**Passage (Q.46 - Q.51):** Bananas, apples, and avocados continue to ripen after they are picked. Cherries, blackberries, and grapes do not. The difference between climacteric fruits (the former) and non-climacteric fruits (the latter) matters to fruit growers and greengrocers, who must make sure their wares are in tip-top condition when they arrive at the marketplace. But how those differences originally came about remains unclear.

Two biologists of the University of Tokyo offer a suggestion. Fruits, they observe, exist to solve a problem faced by all plants – how best to spread their progeny around. Wrapping their seeds in a sugary pulp to provide a tasty meal serves as a way to get animals to do this for them. They do, however, need to make sure that their fruits favour the animals most likely to do the distributing. The biologists propose that climacterism, or its absence, is a way to achieve this. If ground-dwelling animals are the main distributors, then the continuing ripening of fallen fruit (i.e., climacterism) is beneficial. If, by contrast, those distributors are arboreal or aerial, and so can feed on unfallen fruit, then non-climacteric fruits will do well.

To test their idea, the two researchers studied 80 varieties of fruits, and noted which animals each depended on for its propagation. 35 of these fruits, eaten by both ground-dwelling animals and arboreal or aerial animals, were non-climacteric. Further, 15 of the 19 varieties eaten principally by ground-dwellers were climacteric, while 21 of the 26 fed on by arboreal or aerial animals were non-climacteric.

That is a suggestively strong correlation. And the authors' hypothesis is fortified by other evidence. They point out that non-climacteric fruits tend to have vivid colours, especially reds and purples. This may help them to stand out amid the foliage of their parent plants, advertising their presence. Climacteric fruits are generally better camouflaged. That makes them harder to spot until they have fallen to the ground.

The main limitation of their work is that they looked at fruits eaten by people. This has probably contaminated the sample, for thousands of years of selective breeding for traits that human beings find appealing may have blurred any signal optimised by natural selection. The next step, therefore, should be the analysis of wild fruits.

46. According to the passage, the interest in the difference between climacteric and non-climacteric fruits is in the
- (a) public health context.
  - (b) gastronomic context.
  - (c) commercial context.
  - (d) environmental context.
47. The main point that the writer makes that fruit bearing plants:
- (a) are better protected than other plant species and can propagate easily.
  - (b) of all kinds need to be studied, not just those consumed by humans.
  - (c) and other plant species' propagation can't be studied easily.
  - (d) have same problem in propagation as other plants.
48. Consider the following two Findings:
- (i) Non-climacteric fruits tend to have vivid colours.
  - (ii) Thirty-six varieties of climacteric and non-climacteric fruits were eaten predominantly either by ground-dwellers, or by arboreal or aerial animals respectively.
- According to the passage,
- (a) Finding (i) provides supplementary evidence and Finding (ii) provides main evidence confirming the hypothesis of the biologists.
  - (b) Both Findings (i) and (ii) provide main evidence confirming the hypothesis of the biologists.
  - (c) Finding (i) provides main evidence and Finding (ii) provides supplementary evidence confirming the hypothesis of the biologists.
  - (d) Both Findings (i) and (ii) provide supplementary evidence confirming the hypothesis of the biologists.
49. The study has been based on
- (a) wild fruits consumed by animals.
  - (b) fruits sourced by greengrocers.
  - (c) fruits available at the University of Tokyo.
  - (d) fruits that are consumed by humans.
50. The origins of the distinguishing characteristics between the two types of fruits, climacteric and non-climacteric are
- (a) clear now as a result of this research.
  - (b) nebulous in spite of research.
  - (c) trivial at this stage.
  - (d) dependent on researcher observation.

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51. Which one of the following options means "arboreal" and "camouflage"?
- (a) protected and fortified
  - (b) tree-dwelling and disguised
  - (c) covered and variegated
  - (d) ground-dwelling and hidden

**Passage (Q.52 - Q.57):** By 1798, Jenner had succeeded in demonstrating the protective quality of the cowpox virus against smallpox, by putting on record details of 23 cases, contracted either casually or by direct inoculation. Sixteen of these had occurred accidentally among dairy workers in the course of occupations connected with cows and horses; the rest were done under Jenner's direction. Among the persons inoculated was Jenner's own little second son, Robert Harding Jenner, an infant eleven months old. Jenner demonstrated conclusively that the cowpox protects the human constitution from the infection of smallpox.

After Dr. Jenner had made his tests, he prepared a pamphlet for publication. He also went to London, so that he might have the opportunity to introduce the subject personally to friends and demonstrate the truth of his assertion to them. He remained in London for nearly three months without being able to find anyone who would submit to vaccination. Jenner went back to Gloucestershire, disappointed. It happened, however, that soon after his return home, a distinguished London surgeon named Cline resolved to make a trial of the vaccine material which Jenner had left with his friends.

The patient was a child suffering from a form of chronic hip-joint disease. The vaccine material was inoculated, and the vaccine vehicle ran rather a normal course and healed fully. The little patient was afterward inoculated with smallpox virus and found to be incapable of acquiring that disease. This case attracted considerable attention. The child was in a run-down condition, and the vaccine material might very well have provoked a rather serious local reaction. In a way, the fate of vaccination hung in the balance and good luck was in its favour. Mr. Cline, however, after this, became a strong advocate of vaccination, and brought it very decidedly before the London physicians.

It was not long before the opposition to the practice of vaccination took definite form. One of the best-known London physicians of the time, Dr. Ingenhouz, became the leader of a strong faction of the medical profession of London, who not only would have nothing to do with vaccination, but proclaimed openly that it was a dangerous innovation, absolutely unjustifiable, and communicated a disease without protecting against any other. Dr. Watt from Glasgow blamed the vaccine for the increase in severe cases of measles and measles-related deaths among children.

Fortunately, only a few colleagues were so illogical, and an excellent idea of how much Jenner's discovery was appreciated by his contemporaries may be obtained from the number of honours, diplomas, addresses and communications from public bodies and distinguished individuals which he received. Most of the prominent medical and scientific societies of Europe elected him a member or sent him some special token of recognition.

52. 'Local reaction' refers to
- (a) encouraging reaction from local doctors.
  - (b) adverse reaction caused by injections.
  - (c) encouraging reaction from the people of the locality.
  - (d) adverse comments and protests by people from that location.
53. Jenner received a lot of recognition from medical bodies because
- (a) fortunately, only a few colleagues were illogical enough to reject him.
  - (b) Dr. Watt could not prove that vaccination caused measles.
  - (c) medical societies across Europe regularly engaged in tokenism.
  - (d) most of his colleagues realised the effectiveness of his work.
54. Twenty-three cases were put on record with the objective to explain very clearly that
- (a) it is beneficial to immunity if we work with cows and horses.
  - (b) the cowpox vaccine protected the patients from another deadly disease.
  - (c) Dr. Jenner was ready to go to any extent, even testing the vaccine on his own son.
  - (d) accidental contraction of cowpox happens among dairy workers.
55. By calling the vaccine unjustifiable, Dr. Ingenhouz meant that vaccination
- (a) was an injustice against those on whom it was tested.
  - (b) made people sick and failed to provide general immunity.
  - (c) was being carried out without any legal basis.
  - (d) actually spread the disease to a large population.

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56. According to the author, the main idea in the passage is  
(a) scientific breakthroughs are more likely to happen in major urban centres.  
(b) documentation is key for disseminating science.  
(c) chance and risk play a part in the success of scientific experiments.  
(d) to explore the causes for vaccine hesitancy.
57. On returning from London, Dr. Jenner was disappointed because  
(a) he was unsuccessful in replicating the experiment due to lack of volunteers.  
(b) his friends would not agree with his findings on the vaccine.  
(c) his friends responded negatively to the vaccine.  
(d) the vaccine did not receive any recognition, rewards, or a patent.

**Direction (Q.58-Q.64):** Complete the following sentences by choosing the most appropriate word/phrase from the options given below.

58. Flying this simple aeroplane is a \_\_\_\_\_ for the experienced pilot.  
(a) left-handed game (b) left-handed sport  
(c) slice of cake (d) piece of cake
59. Leela is always nasty and inconsiderate with her colleagues; now that she has a rude superior, she is getting \_\_\_\_\_.  
(a) a spoon of her own medicine (b) a taste of her own medicine  
(c) an unpleasant medicine dose (d) a dose of bitter medicine
60. I still have two more difficult exams left, but I'm trying to \_\_\_\_\_; after these I won't have any more for a year!  
(a) think about the sunny side (b) think upon the sunny side  
(c) look on the bright side (d) look forward to the bright side
61. For the past three decades, this chain of coffee shops has been committed to building a culture where everyone is welcome. They are an ally to the LGBTQ community, and this is just one instance of their \_\_\_\_\_.  
(a) mindfulness and objectivity (b) discriminatory practices  
(c) Inclusivity and diversity (d) discretionary practices
62. Ever since Girish won the prestigious Infosys prize, he has been behaving \_\_\_\_\_.  
(a) controversially (b) condescendingly (c) ambitiously (d) overly
63. Some of the best spies take the guise of innocuous secretaries or researchers and are able to send large amounts of information to their heads of espionage, as they are \_\_\_\_\_.  
(a) hiding within everyone's sight (b) hiding from watchful eyes  
(c) hiding documents very craftily (d) hiding in plain sight
64. She \_\_\_\_\_ her classmates because she comes from a very rich, aristocratic family.  
(a) looks away from (b) looks up to  
(c) looks down on (d) looks towards

**Direction (Q.65-Q.69):** In each of the following sentences, the incorrect part of the sentence is underlined. Choose an alternative from the four given options so that the sentence is rendered correct.

65. His talk on heritage sites has picked up my interest.  
(a) brightened (b) aroused  
(c) adopted (d) caught
66. If I had known that you needed to go to the airport yesterday, I could drive you there.  
(a) should have driven you there. (b) should drive you there.  
(c) would have driven you there. (d) would drive you there.

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67. He was having a difficult time, but never once he complained.
- not once did he give the complaint.
  - not once he complained.
  - not once any complaining happened.
  - not once did he complain.
68. The Principal and professors are authorized to sanction leave to a student provided she will have a good attendance record.
- provided she has a good attendance record.
  - provided she will have a good attendance record.
  - provided that a good attendance record is maintained by her.
  - provided she had a good attendance record.
69. When all the words on the page got scrambled, she quickly pressed undo, after which the document reverted back to its original state.
- document reverted to it's original state.
  - document reverted to its original state.
  - document reverted back to original state
  - document reverted back to it's original state.

**Direction (Q.70-Q.73):** Each of the paragraphs given below has a sentence missing which is indicated by a blank. From the choices given below each paragraph, choose the sentence that seems most logically appropriate to complete the paragraph.

70. \_\_\_\_\_. In Southeast Asia, for example, climate and lifestyle factors mean that people spend much more time in shopping malls than Europeans do, who might go shopping once a fortnight. Then there are gender variations in the way we shop. As descendants of hunter-gatherers, accumulating is in our blood, but how you go about it depends on whether you are male or female.
- Retail stores constantly offer promotional discounts to entice shoppers.
  - Culture plays an important role in shaping the shopping experience.
  - By and large, people enjoy shopping and comparing brands and prices.
  - When it comes to shopping, men hunt, and women gather
71. This winter, I wish to go to the beaches for a holiday. I think I will go to Goa, India's most well-known beach holiday destination. It is about 600 km away from Mumbai, so reaching there is not a major problem. \_\_\_\_\_. The major Goan beaches are tourist attractions and have some good beach-view hotels and plenty of shops selling touristy things such as beach robes, hats, jewellery, bags, and more.
- A great getaway place, it offers an interesting variety of food, sightseeing options, flea markets, and some wonderful Indo-Portuguese buildings.
  - There are buses that ply at night, there are both day and night trains, and one can always hire a car and reach there in comfort in about 10 hours.
  - Some major beaches are Baga, Bogmalo, Candolim, Calangute, and Dona Paula, where adventure sports activities like water skiing and scuba diving are organized.
  - One of the great things about a holiday in Goa is that we can be as lazy as we want, relaxing all day, sunbathing, sipping juice, and trying out different Goan tidbits.
72. Nowadays, many teenagers and young adults around the world have to spend most of their time studying in order to get top grades, a university place, and a good job. \_\_\_\_\_. There are several causes for this situation, one of the main ones being exams. These are stressful experiences, and most students take a huge number of them during their school career.
- For this reason, the education system has to change for the welfare of the students.
  - For this reason, there is often little time left for hobbies or socializing.
  - Therefore, studying while you are exhausted is unproductive.
  - Therefore, it would be better to learn how to apply the knowledge gained



73. The people of the Indus Valley civilization wrote with a script. So far scholars have been unable to decipher that script. Archaeologists who have been excavating newly discovered sites in Mesopotamia hope to find a text that has scripts from both the Indus valley and Mesopotamia, the second of which has already been deciphered. \_\_\_\_\_.
- (a) They will then be able to decode the Indus valley language.
  - (b) They can then prove that there was trade between the two.
  - (c) They will then be able to decide which civilization was older.
  - (d) The nature of relationships between the two will come to light.

**Direction (Q.74-Q.79):** The sentences below have words that are missing. Choose the best option from those given below to complete the sentence.

74. Achieving spaceflight enabled humans to begin to explore the solar system and the rest of the \_\_\_\_\_, to understand the many objects and \_\_\_\_\_ that are better observed from a space perspective, and to use for human benefit the resources and attributes of the space environment. All of these activities - discovery, scientific understanding, and the \_\_\_\_\_ of that understanding to serve human purposes - are elements of space \_\_\_\_\_.
- (a) galaxy; ideologies; enormity; visualisation
  - (b) universe; phenomena; application; exploration
  - (c) cosmos; materials; principles; identification
  - (d) configuration; elements; functioning; vastness
75. Visually strong, \_\_\_\_\_ films of the 1920s are \_\_\_\_\_ preserved and suffer from censorship cuts, leading to the \_\_\_\_\_ that they were primitive and barely watchable.
- (a) monochrome; barely; observation
  - (b) silent; poorly; misconception
  - (c) action-packed; badly; accusation
  - (d) classic; dispassionately; conclusion
76. Everyday more than 1 billion promotional messages are sent that are commercial and \_\_\_\_\_. Although \_\_\_\_\_ have used more technology to stop this, \_\_\_\_\_ find ways around it.
- (a) educational; firewalls; hackers
  - (b) inescapable; governments; advertisers
  - (c) informative; authorities; promoters
  - (d) unsolicited; regulators; spammers
77. The investigators have \_\_\_\_\_ that he had leaked confidential \_\_\_\_\_ information about the acquisition, thereby allowing associates to profit \_\_\_\_\_ from the deal.
- (a) announced; financial; treacherously
  - (b) discovered; internal; enormously
  - (c) alleged; insider; illicitly
  - (d) Accused ;important; dramatically
78. The beauty of \_\_\_\_\_ is that it poses thought-provoking questions and inspires us to think deeply about \_\_\_\_\_ and life in general. Further, \_\_\_\_\_ about the ideas and perspectives outlined by different thinkers can help us to gain a better \_\_\_\_\_ of the world we live in.
- (a) philosophy; ourselves; pondering; understanding
  - (b) linguistics; language; cogitating; picture
  - (c) history; animals; mulling; acquaintance
  - (d) orthography; writing; speaking; perspective
79. In an anthropocentric \_\_\_\_\_, animals are no more than property to human beings. Therefore, the concepts of 'humane' treatment and 'necessary' \_\_\_\_\_ are economic in nature. The idea that killing animals is not a serious issue as long as animals are not made to suffer rests \_\_\_\_\_ on the widely accepted idea that animals do not have a right to life.
- (a) construct; comfort; somewhat
  - (b) belief; well-being; partially
  - (c) worldview; suffering; explicitly
  - (d) universe; gain; entirely

**Direction (Q.80-Q.85):** One of the statements below contains a word used incorrectly. Choose the option which has the incorrect or inappropriate usage of the word.

80. (a) She wanted to make a good impression but, at the last moment, she discovered a spot of ink on her collar.  
(b) There was a scenic spot not very far from our cottage where we used to go for picnics.  
(c) Such a spot on his career was difficult to ignore when deciding promotions.  
(d) He was unsure if he could respond to the question asked; fortunately, his answer was spot on.

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81. (a) Although he thinks he is the life of the party, his remarks are insensitive, and his jokes are vulgar, cross, and crude.  
(b) It was a long journey by road, and they had yet to find a boat that would help them to cross the river.  
(c) The mistakes of his youth are the cross that he has to bear for the rest of his life.  
(d) We were told that she had lived through tough times which made her cross and cranky as she grew older.
82. (a) The problems caused by flouting rules are many, but some people do not care.  
(b) Her fault was that she flouted the dress code and refused to wear the uniform.  
(c) The orchestra decided to flout tradition and played their instruments wearing ordinary clothes.  
(d) She flouted her designer wear and accessories in front of her classmates.
83. (a) The judicial magistrate asked the prosecuting lawyer to state the grounds on which the defendant had been arrested.  
(b) The state of his grandfather's health was critical, but it was difficult for him to get in touch with all the members of the family.  
(c) Uttar Pradesh, being the most densely populated state in India, has the highest number of representatives in Parliament.  
(d) Her admirers considered her demeanour to be of great state and refinement, and most impressive.
84. (a) As he was very old, he didn't have the strength to draw water from the well near his house.  
(b) He was lucky enough to win the draw in the lottery, where the prize was a rare painting.  
(c) He used to keep all his important documents in the draw of his cupboard.  
(d) The cricket match was heading for a draw, when the batsman hit a sixer and our team won.
85. (a) The policeman collaborated with the film makers who were shooting a crime thriller.  
(b) Some treacherous relatives of Indian rulers collaborated with the British Empire.  
(c) When the women were asked to join the protest, they refused to collaborate.  
(d) She interviewed many teens to collaborate her thesis on their mental health issues.

**Direction (Q.86-Q.90):** The sentences given below, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the most logical order and enter the sequence of numbers in the space provided. Only numbers are to be entered in the space provided for the answer, and no other letters or characters should be entered. For example, a response such as 3412 or 25143 is valid, and a response such as 3412. Or 25143. is invalid.

86. 1. The Central African Republic has approved Bitcoin as an official currency.  
2. Experts foresee that this will damage the environment as well as the economy.  
3. Others claim that this may make money laundering easy and also use up a lot of electricity.  
4. Economists criticised this move as a potential risk to the financial stability of the nation.
87. 1. Located in the foothills of the Sion Fort, the lake is a Grade II-A heritage structure, dating back to the 17th century.  
2. Once home to several marine creatures, the lake is now surrounded by high-rise residential buildings.  
3. The Municipal Corporation is set to breathe life back into the city's Sion Talao (Lake) with the rejuvenation and beautification of the centuries-old lake.  
4. Over the years, the lake has lost its prominence.  
5. Earlier the Talao was a known natural water tank with the Sion hillock expanding around it like an enclosing wall.
88. 1. A sub-par monsoon cuts farm yields, output, and farm incomes, increasing the country's dependence on food imports.  
2. A robust monsoon will help put a lid on food inflation by increasing domestic output of a variety of goods and commodities.  
3. This is because half the Indian population depends upon farm-derived income.  
4. The June-to-September rain-bearing system is often called the lifeblood of the country's economy.  
5. Unfortunately, however, nearly 40% of India's net sown area does not have access to irrigation

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- 89.
1. The popularity of these creations grew along with that of the tea ceremony in the 16th century.
  2. However, savvy tourists find the best bargains for ceramics in Tokyo's Kitchen Town.
  3. Modern shops in touristy spots display thousands of them, both hand crafted and factory made.
  4. Japanese artisans have been making ceramics, known as Yakimono since prehistoric times.
- 90.
1. This means the brain receives less input over the course of a day.
  2. Youthful eyes jiggle regularly to take in new or unfamiliar stimuli.
  3. As the person attached to those eyes ages, the eye muscles grow slower and the pathways between the eye and the brain grow longer, more complex, or, in some cases, get damaged.
  4. Our eyes quickly scan the surroundings and then send the data to the brain.
  5. Human eyes perform jiggles, more formally called saccades, in response to a change in the field of vision.

