

INSTRUCTIONS

1. Read the instructions given at the beginning/end of each section or at the beginning of a group of questions very carefully.
2. This test has two sections with a total of 100 questions – 50 questions each in section I and section II. The total time available for the test is **170 minutes**. You can allot this time across the sections as you wish. However, you are expected to show your competence in both the sections.
3. All questions carry three marks each. Each wrong answer will attract a penalty of one mark.

SECTION – I
Number of Questions = 50

DIRECTIONS for question 1: Select the correct alternative from the given choices.

1. Find the sum of the first ten terms of the series

$$\frac{5}{2}, \frac{9}{4}, \frac{17}{8}, \frac{33}{16}, \dots$$

(A) $21 - \frac{1}{2^{10}}$

(B) $21 + \frac{1}{2^{10}}$

(C) $21 - \frac{1}{2^9}$

(D) $20 + \frac{1}{2^{10}}$

3. Find the number of steps that Rajesh, a friend of Raju, would take to reach the bottom, if he walks half as fast as Raju.

(A) 10 (B) 12 (C) 16 (D) 18

DIRECTIONS for question 4: Select the correct alternative from the given choices.

4. When a new person is included, the average weight of a group increases by 1 kg. Instead, if the new person replaces one of the persons in the group, the average weight of the group decreases by 1 kg. If the weight of the replaced person is 50 kg, then which of the following statements are definitely true?

I. Twice the weight of the new person is more than the initial average weight of the group.

II. The initial number of members in the group is odd.

III. The magnitude, in kg, of the weight of the new person is an odd number.

IV. The magnitude, in kg, of the initial average weight of the group is an odd number.

(A) Only II and IV (B) Only II and III

(C) Only I and IV (D) Only I and III

DIRECTIONS for questions 2 and 3: Answer the questions on the basis of the information given below.

Raju is climbing down an escalator (a moving staircase) which is moving down. From the top he takes 20 steps to reach the bottom, while Rajat, who walks twice as fast as Raju, takes 30 steps from the top to reach the bottom.

2. Find the total number of steps visible at any point of time on the escalator.

(A) 40 (B) 48 (C) 60 (D) 56

DIRECTIONS for questions 5 to 9: Answer the questions on the basis of the information given below.

Eight students – A, B, C, D, E, F, G and H – took a test comprising three sections – QA, DI and VA. The test had four different sets of papers – 111, 222, 333 and 444. The following table gives the maximum marks for which each set was conducted. The marks scored by any student in any section is an integer.

Maximum marks in each test area for each set of papers

Set	Section		
	QA	DI	VA
111	90	100	80
222	100	100	90
333	90	90	90
444	100	80	100

The following table gives the set which each of the eight students got, the marks scored by that student and his percentile scores – sectional as well as overall.

Student	Set	QA		DI		VA		Overall	
		Marks	Percentile score	Marks	Percentile score	Marks	Percentile score	Marks	Percentile score
A	111	70		70			98.5	200	
B	222		97	80	99		97		
C	444	85			97	75			99
D	222	70	98	60			98.7	200	
E	333	65			98	64	95		
F	111		99	60	94	70	99		
G	333		97.5	60		80			98
H	444	80	98.8	70			96		

The following definitions hold for each of the sections and the overall test:

Percentage score of a student in a section/overall test

$$= \frac{\text{marks obtained by the student in that section/overall test}}{\text{maximum marks in that section/overall test}} \times 100$$

Percentile score of a student in a section/overall test

$$= \frac{\text{Number of persons who got a percentage score less than the student in that section/overall test}}{\text{Total number of students who took the test}} \times 100$$

The total number of students who took the test is 10,000.

5. At least how many of the given eight students got an overall percentile score more than that of D?
 (A) 6 (B) 3 (C) 5 (D) 4
6. Which among the following cannot be the overall percentile score of F?
 (A) 97.5
 (B) 98.5
 (C) 99.5
 (D) More than one of the above
7. Who among the following cannot have the highest overall percentile among the given eight students?
 (A) C (B) E (C) F (D) H
8. Which of the following can be the overall percentage score of E?
 (A) 68
 (B) 70
 (C) 75
 (D) More than one of the above
9. If the marks scored by B and H in their respective VA sections are b and h respectively, then how many different ordered pairs (b, h) are possible?
 (A) 9
 (B) 3
 (C) 6
 (D) Cannot be determined

DIRECTIONS for questions 10 and 11: Answer the questions on the basis of the information given below.

There are ten pairs of identical white socks, 12 pairs of identical black socks and 14 pairs of identical yellow socks, all of which are kept in a box. I now randomly draw a few socks from the box.

10. If I have to be certain of drawing at least one pair of socks of the same colour, what is the minimum number socks that I have to draw from the box?
 (A) 15 (B) 24
 (C) 37 (D) None of the above

11. If I have to be certain of drawing at least one pair of socks of each colour, what is the minimum number of socks that I have to draw from the box?
 (A) 46
 (B) 50
 (C) 54
 (D) None of the above

DIRECTIONS for questions 12 and 13: Answer the questions independently of each other.

12. There are four billiard balls randomly located on a pool table. Each ball is of a distinct colour from among Red, Blue, Green and Yellow. The balls are all struck simultaneously and it is observed that there are a total of 57 collisions between the balls before they all come to rest. If it is known that each collision involved exactly two balls, then which of the following statements is / are definitely false?
 (I) No ball was involved in 29 collisions or more
 (II) No ball collided ten or more times with the same ball.
 (III) No ball was involved in more than 54 collisions.
 (IV) Exactly one ball collided exactly 53 times with the same ball.
 (A) Only I and III (B) Only I, II and IV
 (C) Only II and IV (D) Only I and II
13. If $x_0 = 1$ and $x_{n+1} + 12n = 5x_n + 3$, find x_{200} .
 (A) $5^{200} - 600$ (B) $5^{200} + 600$
 (C) $5^{199} - 600$ (D) $5^{199} + 600$

DIRECTIONS for questions 14 and 15: Answer the questions on the basis of the information given below.

There are 100 players, numbered 1 to 100, and 100 baskets, numbered 1 to 100. The first player puts one ball each in every basket starting from the first basket (i.e., in the baskets numbered 1, 2, 3, ...). The second player puts two balls each in every second basket starting from the second basket (i.e., in the baskets

numbered 2, 4, 6,). The third player puts three balls each in every third basket starting from the third basket (i.e., in the baskets numbered 3, 6, 9,). All the remaining players also put the balls in this manner, i.e., the player numbered n puts n balls each in every n^{th} basket starting from the basket numbered n .

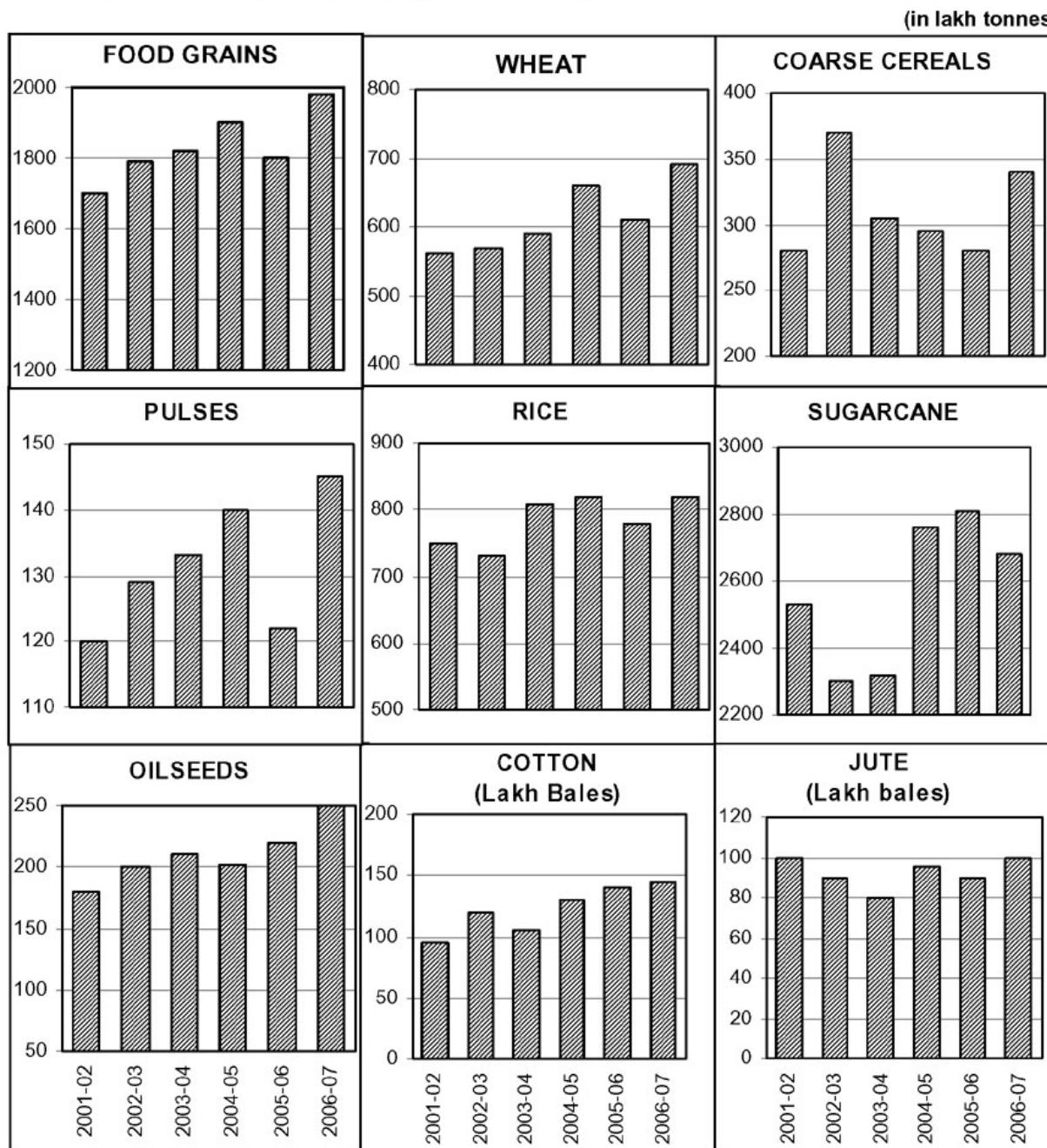
14. Which basket will finally have the maximum number of balls?
 (A) 96 (B) 98 (C) 100 (D) 90
15. How many baskets will finally have exactly twice the number of balls as the number on the basket itself?
 (A) 0 (B) 6 (C) 4 (D) 2

DIRECTIONS for questions 16 and 17: Answer the questions independently of each other.

16. How many prime numbers are there which when divided by another prime number, give a quotient which is the same as the remainder?
 (A) 0 (B) 1 (C) 2 (D) More than 3
17. If the present time in New York is 2:00 a.m., then the time in New York exactly 19199999999915 hours later will be
 (A) 1:00 a.m. (B) 1:00 p.m.
 (C) 3:00 a.m. (D) 3:00 p.m.

DIRECTIONS for questions 18 to 21: Answer the questions on the basis of the information given below.

The following bar graphs give the details regarding the agricultural production in the country across nine categories – Food Grains, Wheat, Coarse Cereals, Pulses, Rice, Sugarcane, Oilseeds, Cotton and Jute – for the period 2001-02 to 2006-07.



18. How many of the categories have recorded a growth of at least 10% in production from 2003-2004 to 2004-2005?
 (A) 2 (B) 3 (C) 4 (D) 5
19. Which category has shown the highest average annual percentage growth during the period 2001-02 to 2006-07?
 (A) Cotton (B) Oilseeds
 (C) Coarse Cereals (D) Pulses
20. The production of which category, in any one year, has shown the highest percentage growth over the previous year's production?
 (A) Pulses (B) Coarse Cereals
 (C) Sugarcane (D) None of these
21. In which year did the maximum number of categories follow the same pattern of change (i.e. increase or decrease) in production, when compared with the previous year?
 (A) 2002-03 (B) 2004-05
 (C) 2005-06 (D) 2006-07

DIRECTIONS for question 22: Select the correct alternative from the given choices.

22. A and B went to a market and found that the only fruits available there were bananas and mangoes. A purchased 23 mangoes more than the number of mangoes purchased by B. After that, both A and B purchased certain number of bananas as well. If A and B purchased a total of 30 and 40 fruits respectively and spent an equal amount of money on the fruits, then find the price of a mango (in ₹), given that it is ₹10 more than that of a banana.
 (A) 23 (B) 43 (C) 33 (D) 86

DIRECTIONS for questions 23 and 24: Each question is followed by two statements, I and II. Answer each question using the following instructions.

- Choice (A) if the question can be answered by using statement I alone, but cannot be answered using statement II alone.
 Choice (B) if the question can be answered using statement II alone, but cannot be answered using statement I alone.
 Choice (C) if the question can be answered using either statement alone.
 Choice (D) if the statement can be answered by using both statements together, but cannot be answered using either statement alone.

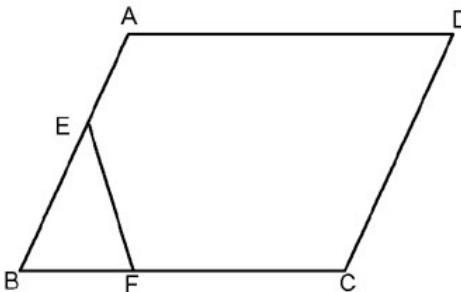
23. A circle with its centre at the origin has a given radius of 'r' cm. Two tangents are drawn to the

DIRECTIONS for questions 30 to 34: Answer the questions on the basis of the information given below.

The following table gives the details of the placements at six business schools in India (All salaries are per annum)

Institute	IMA	IMB	IMC	IMI	IMK	IML
Number of Students	247	200	247	112	120	209
Number of Offers	477	328	391	202	174	334
Average Salary (foreign)	\$80,000	\$75,000	\$93,000	\$0	\$55,000	\$60,000
Average Salary (Indian)	₹7,90,000	₹8,25,000	₹8,32,000	₹8,16,000	₹7,33,000	₹7,80,000
Number of Companies	76	78	78	53	56	85
Highest Salary (foreign)	\$1,52,000	\$1,20,000	\$1,23,000	\$0	\$85,000	\$70,000
Higher Salary (Indian)	₹14.5 lakh	₹15 lakh	₹16 lakh	₹12.5 lakh	₹10 lakh	₹14 lakh

Institute A is said to dominate Institute B, or $A > B$, if A has higher values than B for each of average number of offers per student, average Indian salary and average foreign salary. In this case, B is said to be dominated by A or $B < A$. An institute is said to be *ideal* if no other institute dominates it. An institute is *not ideal* if at least one institute dominates it.

30. How many of the institutes are *ideal*?
 (A) 2 (B) 3 (C) 4 (D) 1
31. Which of the following statements is/are true?
 a. IMA > IMK and IMA > IML
 b. IMB > IML and IML > IMK
 c. IMA > IMI and IMI > IMK
 d. IMC > IMK and IMC > IML
 (A) a and d (B) a and b
 (C) b and d (D) a, b and d
32. Assuming that average salaries are calculated only for job offers accepted by the students and every student at IMA accepted one offer, find the approximate ratio of the number of students who got a foreign placement to the number of students who got an Indian placement at IMA. It is known that the total average salary at IMA = ₹11.25 lakh and 1\$ = 60 Indian Rupees.
 (A) 1 : 8 (B) 1 : 11
 (C) 1 : 9 (D) Cannot be determined
33. Which of the following are reasons why IML is not classified as an *ideal* institute?
 a. IMA dominates IML
 b. IML is dominated by IMB
 c. IMC dominates IML
 d. IML dominates IMK
 (A) Only a (B) Only a and b
 (C) Only b, c and d (D) Only a, b and d
34. If each student can accept only one offer, which institute had the highest average salary for offers which were accepted?
 (A) IMA (B) IMC
 (C) IMK (D) Cannot be determined
- DIRECTIONS** for questions 35 to 41: Answer the questions independently of each other.
35. In a textile shop, the number of shirts having a design is thrice the number of shirts not having a design. It has sarees of three colours – Brown, Black and Yellow. The number of brown sarees is half the number of black sarees and one-fifth of the number of yellow sarees. Find the number of shirts not having a design, given that the total number of shirts and sarees in the shop is 72 and the number of sarees that are hand spun is four times that of those that are not hand spun.
 (A) 9 (B) 8 (C) 7 (D) 6
36. How many three-digit numbers satisfy all the following conditions?
 I. When divided by 29 or 3, they leave a remainder of 2 in each case.
 II. When divided by 17 and 38, they leave remainders of 6 and 24 respectively.
 III. When divided by 18 and 21, they leave remainders of 14 and 8 respectively.
 (A) 1 (B) 2
 (C) 3 (D) More than 3
37. Ajay can complete a work in 32 days. Bhanu can complete the same work in half the time taken by Ajay. Chandu completes the work in half the time taken by Bhanu. Dinesh completes the work in half the time taken by Chandu. They are paired into two groups of two each. If the first group takes $\frac{2}{3}$ times the time taken by the other group to complete the work, the second group comprises
 (A) Ajay and Chandu. (B) Bhanu and Chandu.
 (C) Ajay and Dinesh. (D) Bhanu and Dinesh.
38. If $\frac{15x^2 + 8y^2}{22} = xy$ and x, y are two numbers belonging to the set of the first 100 natural numbers, how many distinct ordered pairs (x, y) are possible?
 (A) 43 (B) 50 (C) 53 (D) 41
39. In the figure given below, ABCD is a parallelogram, with the length of AB being two-thirds the length of BC. E is the midpoint of AB and F is a point on BC such that $\angle EFB = \angle BAC$.
- 
- If the length of FC is 8 cm more than that of AE, what is the perimeter (in cm) of the parallelogram ABCD?
 (A) 60 (B) 84 (C) 64 (D) 72
40. P, x and y are natural numbers. If P, when successively divided by x, x and y, gives remainders of 1, 4 and 4 respectively, which of the following statements is/are definitely true?
 I. P is odd
 II. P is a perfect square
 III. The least possible value of P is 121
 IV. The least possible value of P is 9
 (A) Only I and II
 (B) Only I, II and III
 (C) Only III
 (D) Only I, II and IV
41. A is a set of n distinct whole numbers such that there are at least ten even numbers, at least five prime numbers and at least six composite numbers in it. Find the minimum value of n .
 (A) 14 (B) 15 (C) 20 (D) 16

DIRECTIONS for questions 42 to 46: Answer the questions based on the information given below.

XYZ Ltd. produces watches, a product for which there is a maximum demand of 8000 units per month. The graph given below indicates the variable costs per month and the fixed costs per month, for producing the watches, as a function of the number of units produced in the month.

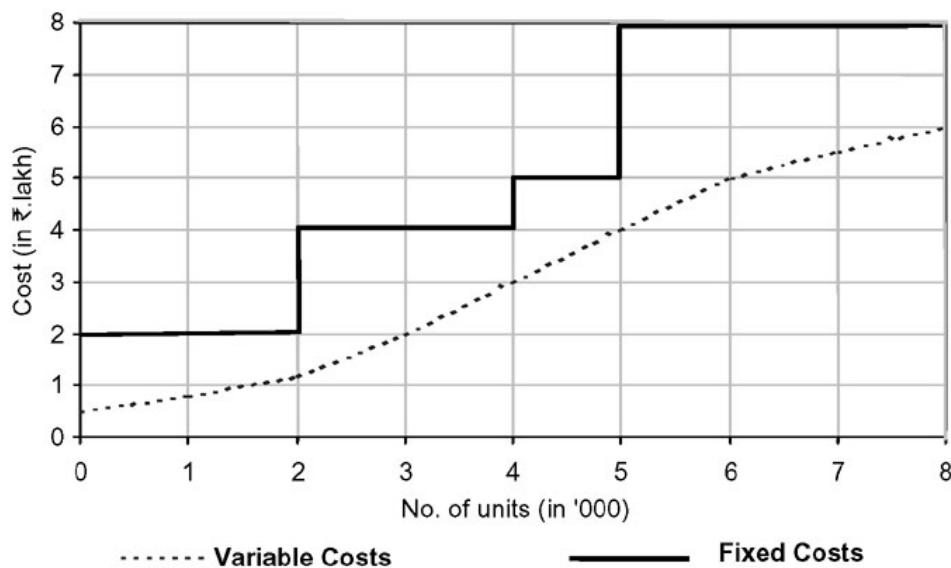
By definition, Total Cost = Fixed Costs + Variable Costs

$$\text{Average cost (AC)} = \frac{\text{Total Cost}}{\text{Number of Units Produced}}$$

Marginal cost (MC) = Change in total cost per unit change in quantity produced.

According to the company policy, watches are produced only in batches of thousands.

The fixed costs in operating the plant for the range of production [0,1999] units are ₹2 lakh. However, in the range [2000, 3999], the fixed costs are ₹4 lakh. In the range [4000, 4999] the fixed costs are ₹5 lakh, while from 5000 units to 8000 units the fixed costs are ₹8 lakh.



42. What is the total profit (in ₹) earned by the company, when it produces 6000 watches in a month, and sells all the watches at ₹700 each?
 (A) ₹3,50,000 (B) ₹8,25,000
 (C) ₹19,50,000 (D) ₹29,00,000
43. If production is increased from 4000 units to 5000 units, what is the marginal cost incurred?
 (A) ₹400 (B) ₹280
 (C) ₹85 (D) ₹40
44. From the given data, it can be inferred that, for production levels in the range of 0 to 8000 units
 (A) MC is an increasing function of quantity produced.
 (B) MC is a decreasing function of quantity produced.
 (C) Initially, MC is a continuously decreasing function of quantity produced, attains a minimum and then increases continuously.
 (D) None of the above is true.
45. If all the watches produced are sold at ₹ 600 each, what should be the production level so that the profit per watch sold is the highest?
 (A) 4000
 (B) 1000
 (C) 8000
 (D) None of the above
46. For a monthly production level in the range of 1000 to 4000 units
 (A) AC is always higher than or equal to MC.
 (B) AC is always lower than MC.
 (C) AC is first lower than MC and then becomes higher than MC.
 (D) None of the above is true.

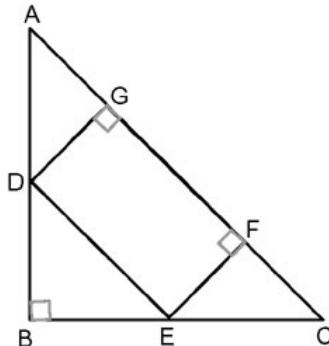
DIRECTIONS for questions 47 to 50: Answer the questions independently of each other.

47. Akshay intends to draw one rectangle of integer sides with a pencil. The lead in the pencil can last for a maximum possible length of 100 units only. Let R denote the set of all possible distinct rectangles from which Akshay can choose to draw one such rectangle. The number of rectangles in the set R is
 (A) 636 (B) 601 (C) 613 (D) 625

48. If x and y are two real numbers satisfying $3 \leq x \leq 4$ and $5 \leq y \leq 8$, then which of the following has the lowest minimum value?
 (A) $x^2 y$ (B) $6xy$ (C) xy^2 (D) $(y-3)^2 x$

49. If one of the sides of a right-angled triangle with integer sides is 15 cm, find the maximum possible area of the triangle.
 (A) 54 cm^2 (B) 187.5 cm^2
 (C) 720 cm^2 (D) 840 cm^2

50.



In the above figure (not drawn to scale), the length of the hypotenuse, AC, of the right-angled triangle ABC is 12 cm. DEFG is a rectangle, with $DE = 4$ cm. If the area of triangle ABC is not less than that of any right-angled triangle whose hypotenuse is 12 cm, find the area of DEFG.

- (A) 12 sq.cm. (B) 16 sq.cm. (C) 6 sq.cm. (D) 9 sq.cm.

SECTION – II

Number of Questions = 50

DIRECTIONS for questions 51 and 52: In each of the questions, the word given in capitals has been used in sentences in four different ways. Choose the option(s) corresponding to the sentence(s) in which the usage of the word is INCORRECT or INAPPROPRIATE.

51. EASE

- (A) Her apology served only to ease her conscience.
(B) The doctor advised Rakesh to ease up on his work schedule a bit as he continually suffered from migraine and panic attacks.
(C) "Blondes have more fun" is a cliché that imputes, quite unfairly, that fair haired persons are of easy morals.
(D) Getting tickets for the movie is easier said than done.

52. HANG

- (A) Problems of logistics have hung up the metro project for weeks and its success is hanging in the balance.
(B) The possibility of rejection hung on my head like the sword of Damocles.
(C) I hung my hat in sunny Southern California.
(D) Learning Latin is a bit tricky at first but you will get the hang of it.

DIRECTIONS for question 53: There are two blanks in the question. From the pairs of words given below the sentence, choose the pair that fills the blanks most appropriately.

53. British Petroleum, on Sunday, 18 May, 2014, succeeded in inserting a tube into a broken pipe on the sea bed to _____ some of the oil escaping from the well. However, the news of this success was _____ by fears that crude oil was leaking ten times faster than the estimates provided by British Petroleum and US officials.

- (A) suck up . . . toned
(B) scoop up . . . sobered
(C) siphon off . . . tempered
(D) draw away . . . palliated

DIRECTIONS for question 54: The question has a set of five sequentially ordered statements. Classify the statements into Facts, Inferences and Judgements based on the following criteria and then choose the most appropriate option.

- **Facts**, which deal with pieces of information that one has seen, heard or read; which are known matters of direct observation or existing reality; which are open to discovery or verification (the answer option indicates such a statement with an 'F')
- **Inferences**, which are logical conclusions or deductions drawn about the unknown, on the basis of the known i.e. based on the knowledge of facts)(the answer option indicates such a statement with an 'I')
- **Judgements**, which are opinions (or estimates or anticipations of common sense or intention) that imply approval or disapproval of persons, objects, situations and occurrences in the past, the present or the future (the answer option indicates such a statement with an 'J')

54. (1) No one who lent money to General Motors (GM) or Chrysler can have been unaware of their dire finances.
(2) Nor can workers have failed to predict their employers' precarious futures.
(3) These were firms that barely stayed afloat in the boom and both creditors and employees were taking a punt on their promise to pay debts and generous health-care benefits.
(4) The bet has failed.
(5) America's government, keen to protect workers, is providing taxpayers' cash to keep the lights on at both firms.

- (A) IIFFI (B) JJFFJ (C) IIJFI (D) IIJJI

DIRECTIONS for question 55: The question has a statement. Pick from the options the most appropriate restatement of the given statement. Note that all the choices may be grammatically correct but you have to select the one that is closest in meaning to the given statement.

55. The development of a scientific worldview has been in large part about the replacement of the idea of divine intervention as the means by which order is maintained in nature with the belief that nature proceeds according to its internal, and immutable, laws.
- (A) The replacement of the idea of divine intervention as the means by which order is maintained in nature with the belief that nature proceeds according to its internal, and immutable, laws has been, mostly, the focus of the development of a scientific worldview.
- (B) The development, in large part of a scientific worldview has been the substitution of the idea of divine intervention as the means by which order is maintained in nature to the belief that nature proceeds according to its internal, and immutable laws.
- (C) The replacement, in large part, of the idea of divine intervention with the belief that nature proceeds according to its internal, and immutable laws, has been the development as the means by which order is maintained in nature, of a scientific worldview.
- (D) The belief that nature proceeds according to its internal, and immutable, laws replaced the idea of divine intervention as the means by which order is maintained in nature and this has been the scientific worldview.

DIRECTIONS for questions 56 to 60: Answer the questions on the basis of the information given below.

The Champions League football tournament had reached the Quarter-Final stage and the eight teams left in the tournament were Manchester United (ManU), Chelsea (Che), Liverpool (Liv), Arsenal (Ars), Real Madrid (RM), Barcelona (Barca), AC Milan (AC) and Inter Milan (IM). Eight friends – Amol, Bala, Chandu, Deepak, Emma, Feroz, Govind and Hema – decided to make their own predictions as to the final positions of the eight teams, i.e., the stage to which each of the teams will advance before getting eliminated from (or winning) the tournament.

The following table gives the predictions given by the eight friends about the winner of the tournament (W), the losing finalist (LF), the two losing semi-finalists (SFs) and the four teams (QFs) which were eliminated at the Quarter-Final stage.

Person	Predictions								
	W	LF	SFs		QFs				
Amol	Liv	RM	ManU	Ars	IM	AC	Che	Barca	
Bala	Che	AC	ManU	Barca	Ars	RM	IM	Liv	
Chandu	RM	IM	Liv	Ars	AC	ManU	Che	Barca	
Deepak	Che	AC	ManU	Liv	Ars	IM	RM	Barca	
Emma	Barca	Ars	ManU	Liv	AC	RM	IM	Che	
Feroz	Che	ManU	Barca	AC	RM	Ars	IM	Liv	
Govind	ManU	RM	AC	IM	Ars	Liv	Che	Barca	
Hema	ManU	Barca	Che	AC	RM	Liv	Ars	IM	

At the end of the tournament, it was found that no two persons correctly predicted the final positions of the same number of teams and only three persons correctly predicted all the four semi-finalists.

56. Which team was the losing finalist of the tournament?
 (A) Manchester United (B) Chelsea
 (C) Real Madrid (D) Barcelona
57. The person who got none of his predictions right was
 (A) Amol. (B) Chandu.
 (C) Emma. (D) Govind.
58. How many of the eight persons correctly predicted the final position of Chelsea?
 (A) 0 (B) 1 (C) 3 (D) 4
59. Who is the person who got all his predictions right?
 (A) Bala (B) Deepak
 (C) Feroz (D) Govind
60. How many of the predictions made by Deepak are correct?
 (A) 2 (B) 4 (C) 6 (D) 8

DIRECTIONS for questions 61 to 65: Read the following passage and answer the questions that follow it.

In 1497, while Luca Pacioli was lecturing in Milan, he met Leonardo da Vinci. They struck up a firm friendship, so much so that Luca and Leonardo were soon sharing lodgings. Leonardo had long been interested in the geometrical problems of perspective, but this was small beer to Pacioli, and it was he who introduced Leonardo to the hard stuff of real mathematics. Leonardo was initially bamboozled. Here was a challenge the equal of his voracious intellect. He at once began to teach himself this new subject, availing himself of expert tuition from his fellow lodger. No other person was to have such a transforming effect on Leonardo's mind. From now on in his notebooks we see Leonardo's attempts to come to grips with multiplication and fractions. He works out how they exhibit themselves in the proportions of

perspective, and moves on to precisely sketched geometric sections of spheres and sliced polyhedrons. He also attempts arithmetical problems. We can imagine the messianically bearded sage (of the celebrated self-portrait) sitting perplexed beside the beefy-faced monk with the still, penetrating eye (of the portrait in Naples) as together they pore over a sheet of figures. At one point in his notebooks, Leonardo tells himself that he must 'learn the multiplication of the roots from maestro Luca'. It is heartening to imagine one of the finest mathematicians of his time instructing one of the finest minds of all time in multiplication tables which many of us have now mastered by the age of seven.

Studying the works of Piero della Francesca, Leonardo saw the mathematical principle lying behind the painted appearance. Despite being a mathematician, Pacioli saw a different world: the fluidity of society well before it solidifies into art. The ordering principle, which lay beneath the painted appearances and coloured cheeks which he observed, was money. Mathematics was much more than mere abstraction, more even than the divine proportions of art – it was also the delineation of money.

In his masterpiece, *Summa de Arithmetica, Geometrica, Proportion et Proportionalita*, Pacioli described all mathematical knowledge. Or at least he attempted to. In those days the attempt to comprehend all human knowledge was still considered a plausible individual aim. Pacioli embraced everything from the pure mathematical knowledge of the ancient Greeks to the latest makeshift measurements of the movements of the heavenly bodies – as astronomy groped its way towards the findings of Copernicus. It was this incorporation of the works of others which led Vasari to say that Pacioli 'gave himself fine feathers'. This judgement, more than any, caused Pacioli to be overlooked by posterity as a mere plagiarist. But Vasari missed the point: Pacioli didn't claim all this knowledge as his own. He was an encyclopaedist rather than a plagiarist.

The section in the *Summa* which remains of most interest to us is *Particularis de Computis et Scripturis* (Details of Book-keeping and Ledgers). This contained his explanation of double-entry book-keeping. It may not have been original, but it was the most comprehensive and comprehensible account yet to appear. Indicatively, like the rest of the book, it was written in Italian, the vulgar language of the people, not the Latin of scholars. This was for the use of businessmen and merchants, men not necessarily educated in anything but the subtle ways and time-honoured practices of commerce.

In essence, Pacioli's version of double-entry book-keeping required each transaction to be entered into the ledger twice – as a debit in the left-hand column and a credit in the right-hand column. At any time a line could be drawn under both columns to see if they balanced out, thus revealing any inadvertent or less innocent mistakes in the accounts. Pacioli's method of double-entry book-keeping also facilitated the calculation of the profit or loss in a business at any given time, or over any given period. Such was the marvellous power and utility of this method that its very jargon entered everyday language. Profit and loss, assets and liabilities, balance sheets, debit and credit, bottom line. Amidst the ebb and flow of commerce, the tide of currency could momentarily be frozen into icily precise figures. The process of business could now be subject to mathematical scrutiny and control.

- 61.** Which of the following best summarizes the first para of the passage?
- Pacioli met Leonardo in Milan and taught him mathematics. His own interest and his tutor's guidance helped to broaden Leonardo's perspective.
 - At Milan, Pacioli and Leonardo quickly became close friends and discussed Mathematics and art at length.
 - Leonardo da Vinci was one of Pacioli's students in Milan. Leonardo illustrated Pacioli's *Summa* and Pacioli taught him the mathematics of art.
 - Pacioli and da Vinci spent time together and Pacioli taught him geometry which appears in many of da Vinci's masterpieces.
- 62.** The style of the passage is
- expository
 - hortatory
 - narrative
 - descriptive
- 63.** The passage describes Pacioli's mathematics as which of the following?
- The geometry of art
 - The mathematics of proportion and accounting
 - The algebra of finance
 - The monetary basis of society
- 64.** Which of the following are true about Pacioli's *Summa*?
- Pacioli's *Summa* was written in Italian, the language of commerce.
 - Its copies were bought by many Italian merchants.
 - Pacioli invented double-entry book-keeping.
 - Pacioli's method of book-keeping gives a trader instant information about his assets and liabilities.
 - An imbalance in debits and credits could easily indicate mistakes in the ledger.
 - The *Particularis de Computis et Scripturis* section of the *Summa* encompassed Arithmetic, Geometry and Proportions.
- b and f
 - a, b, c, e and f
 - a, d and e
 - a, c and d
- 65.** Pacioli can be described as all of the following EXCEPT?
- Italian mathematician
 - A Bohemian artist
 - The master of book-keeping
 - A teacher of proportion and perspective

DIRECTIONS for question 66: In the given question, there are four sentences. Each sentence has pairs of words/ phrases that are italicized and highlighted. From the italicized and highlighted words/ phrases, select the words/ phrases to form correct sentences. Then from the options given, choose the most appropriate one.

66. (i) The scientist's ***portentous*** (a) / ***pretentious*** (b) remarks on the potential impact of rapid climate change left the listeners dumbstruck.
 (ii) 'They haven't eaten all day, so they must be hungry', is ***a priori*** (a) / ***a posteriori*** (b) reasoning.
 (iii) Global warming has made politicians aware of many ***climactic*** (a) / ***climatic*** (b) terms.
 (iv) Her ***lovely*** (a) / ***lovable*** (b) blue eyes would amaze anyone.
 (A) aabb (B) aaba (C) bbaa (D) baaa

DIRECTIONS for question 67: The following question has a paragraph from which the last sentence has been deleted. From the given options, choose the sentence that completes the paragraph in the most appropriate way.

67. The history of human growth and development is at the same time the history of the terrible struggle of every new idea heralding the approach of a brighter dawn. In its tenacious hold on tradition, the Old has never hesitated to make use of the foulest and cruelest means to avoid the advent of the New, in whatever form or period the latter may have asserted itself. We need not retrace our steps into the distant past to realize the enormity of opposition, difficulties, and hardships placed in the path of every progressive idea. The rack, the thumbscrew, the knout and other torture instruments are still with us; so are the convict's garb and the social wrath, all conspiring against the spirit that is serenely marching on. Anarchism could not hope to escape the fate of all other ideas of innovation. _____.

- (A) The strange phenomenon of the opposition to Anarchism is that it brings to light the relation between so-called intelligence and ignorance.
 (B) Indeed, as the most revolutionary and uncompromising innovator, Anarchism must meet with the combined ignorance and venom of the world it aims to reconstruct.
 (C) The emotions of the ignorant man are continuously kept at a pitch by the most blood-curdling stories about Anarchism.
 (D) More than any other idea, it is helping to do away with the wrong and foolish; more than any other idea, it is building and sustaining new life.

DIRECTIONS for question 68: The question has a paragraph followed by a few statements. Study each statement in the light of what is said in the paragraph and classify it as

- (L) if the statement can be logically concluded from the paragraph.
 (C) if the statement contradicts the intent of the paragraph.
 (F) if the statement is a far-fetched conclusion from the paragraph.

- (I) if the statement is irrelevant to the intent of the paragraph.

Select the answer option that best describes the set of four statements.

68. Most of the editorials and articles that appeared in English language newspapers on the Samajwadi party's promise to ban English and the computer seem to have been written with a vitriolic pen. Mulayam Singh Yadav has been accused of trying to push the country back into the medieval age in order to shore up his election prospects. Even Amartya Sen has joined the bandwagon condemning the proposal as regressive. Though Singh's opposition to the computer is not grounded in reality, the opposition to English merits serious consideration.

- (1) Language is what nourishes civilization. Just to be able to march to the connected world's beat, we cannot afford to privilege English over our native tongues.
 (2) By 2050, 90 percent of human languages will disappear from the earth.
 (3) There is an attempt to foist English, a language of the elites, on the masses in the name of it being a link language.
 (4) India, a nation with great linguistic diversity, tops UNESCO's list of countries having the maximum number of dialects on the verge of extinction.
 (A) IIII (B) CILC (C) LILF (D) LFIC

DIRECTIONS for question 69: The sentences given in the following question, when properly sequenced, form a coherent paragraph. Each sentence is labeled with a number. From among the four choices given below the question, choose the most logical order of sentences that constructs a coherent paragraph.

69. (1) However, in terms of numbers, these immigrant investor programmes for countries such as Australia, Canada, UK and US are yet to make a big splash.
 (2) An example of a tough investor visa is the US EB5.
 (3) This is mainly because the terms and conditions sometimes become too tough for Indian business persons to fulfill.
 (4) However, some other programmes, which are not cumbersome, prove to be more useful for setting up business overseas and moving there.
 (5) Visas for investors could be the ultimate status symbol for some of India's high networth individuals who are planning to move overseas and start a business.
 (6) This programme, also referred to as the employment based 5th preference category is available to those investors, who invest at least \$1 million of lawfully obtained capital in a new commercial enterprise, employing at least 10 full time US workers.
 (A) 521463 (B) 512346
 (C) 264513 (D) 513264

DIRECTIONS for questions 70 to 74: Read the following passage and answer the questions given below.

Greek warfare in the Fourth Century BCE was based on the phalanx formation, made up primarily of heavy infantry known as hoplites or fully armed foot soldiers (from *hoplon*, the weapons and accoutrements of war). The nature of warfare went back to early Hellenic times, when communities and later *poleis* (singular *polis*, city-state) were primarily agriculturally based and not in close proximity to one another. Contemporary accounts of ancient battles described phalanxes of more than fifty ranks, but that was rare. No author of the time gave any specific reason for phalanxes being of greater or lesser depth; it was often a decision of the individual phalanx leader to make as they deployed for battle. It may have been a matter of how individual units trained in their own *polis*. Still, units to a depth of eight ranks are described most often. Many factors would come into play when determining phalanx depth: whether the terrain covered the flanks, whether there was sufficient cavalry and light infantry to protect the flanks, the relative advantages of a narrow front for hitting power versus a wider front to prevent outflanking.

The ideal battlefield would be flat, open ground. The enemy armies approached the contest in an open formation, then tightened up as they went into battle, showing a series of almost-interlocking shields with spears protruding from above them. The troops would then break into a trot or run for shock. What happened next is a point of much scholarly debate.

The Greek word for the phalanx battle is *othismos*, meaning "shoving." What, however, does "shoving" mean? Is it a figurative "pushing the enemy back"? Is it a literal tug-of-war in reverse, where the more mass on one side usually defeats the lesser mass on the other? Is it an individual shoving: the frontline soldier using his shield as an offensive weapon along with his spear or sword, pushing the man opposite him in an attempt to make him lose his balance? All these concepts have their advocates among historians, and all have ancient sources that support or contradict them.

There has also been some argument over whether the *othismos* was constant throughout the battle or merely a final push as the enemy began to break. If it was indeed important to have the pressure from the rear, then the side to exert it first would have an advantage; hence, it would almost certainly have been used from the initial contact. In his article on the subject, Robert Luginbill writes, "Fatigue, terrain, casualties, skill, courage, and cowardice would doubtless all play a role in varying the amount of force imparted by the leading edge of shields, but whenever two opposing phalanxes 'came to grips,' the physical pressure of *othismos* would normally continue until one side literally pushed the other to the breaking point." Others argue that the *othismos* came after the front ranks had fought each other with spears and swords. When one side began to gain the momentum, the shove would be the final manoeuvre to force the enemy's retreat.

After reviewing the many conflicting views, Adrian Goldsworthy argues that the nature of the phalanx is as much psychological as physical. It is known that the most experienced veterans made up the front and rear ranks, putting the relative novices in the middle mass of men. After the initial violent contact, the front two rows would fight it out with their spears and, if need be, their swords. Given the weight of armor and exertion such fighting would entail, it would not be unlikely that the fighting would at times cease and the troops stop to catch their breath. The massed troops behind would give them the necessary encouragement to keep fighting (as well as block any path of retreat) while the veterans in the rear would make sure the rookies would hold their ground. Thus, to Goldsworthy's mind, *othismos* may not have one simple meaning. It could have been the physical contact of individuals or units, or it could be the psychological impetus necessary to hit the enemy one more time until he breaks. Therefore, even if the phalanx did not smash the enemy at first contact, it could defeat them through attrition; in each case, depth of formation, combined with determination of the individuals within it, was of paramount importance. Also, if the initial contact did not result in one side breaking, the two forces could have paused to rest, replace wounded men in the front ranks, and charge again; thus, there could be multiple shoves in a battle until the side with the greater unit cohesion prevailed.

Goldsworthy also discusses a major question of practicality. Given the fact that all non-Spartan armies (less a few special units like the elite Sacred Band of Thebes) were militia with minimal training, maintaining a close formation while on the "run to contact" is impossible. Therefore, an initial mass shove would be strongly diluted by men running faster or slower than others. Thus the Spartans, by training to keep in step and advancing more slowly, tended to win their battles by maintaining their strong front.

70. Which of the following factors is not identified as critical to determine phalanx depth, according to the passage?
- (A) Whether physical features of the land would shield the flanks.
 - (B) Whether there are military reinforcements to shield the sides of the phalanx.
 - (C) Whether a shorter width of the phalanx could result in the formation being engulfed by the enemy.
 - (D) Whether a wider phalanx can provide greater impetus to crush the enemy.
71. By the expression "tug-of-war in reverse", the author refers to
- (A) the more matter on one side pulling the lesser matter on the other.
 - (B) the lesser matter on one side pulling the more weight on the other.
 - (C) the lesser mass on one side pushing the more mass on the other.
 - (D) the more mass on one side pushing the lesser mass on the other.

- 72.** Which of the following best represents the key argument made by Luginbill?
- Hoplite battles were generally decided by a mass-shove.
 - Hoplites pushed *en masse* to punch through an enemy phalanx.
 - Hoplite battle was fluid and literal pushing did not normally occur.
 - Most of the force applied by the rear ranks of hoplites will be absorbed by the mass of their own men in front of them.
- 73.** Which of the following observations is/ are supported by Goldsworthy?
- Additional ranks in a phalanx were not intended primarily to hold replacements but rather to strengthen the morale of the soldiers in the front rows.
 - Holes in the front ranks would be filled by troops from the rest of the body.
 - Combat consisted primarily of hand to hand fighting once the two forces engaged.
 - All Spartan armies were militia with minimal training.
- b and c
 - a, b and c
 - c and d
 - a and b
- 74.** All of the following statements are supported by Adrian Goldsworthy EXCEPT?
- One of the jobs of rear rank veterans was to keep men from fleeing battle.
 - Moving troops in formation was the Spartan key to crushing the enemy.
 - The sergeant would bring up the rear by shoving to be able to call for evacuation of those who would collapse.
 - When new recruits were engaged, they were sandwiched in the middle ranks.
- DIRECTIONS for question 75:** The following question has a sentence with two blanks. Given below the question are four pairs of words. Choose the pair that best completes the sentence.
- 75.** The fact that there is no fixed relationship between particular overt actions and the underlying motives was necessarily a/an _____ to understanding personality; moreover, because of the phenomenon of repression, even introspection could not be safely relied upon; therefore, the _____ designed by Freud for investigating personality have proved revolutionary and have given us the first comprehensive psychological system.
- fortification . . . procedures
 - hindrance . . . techniques
 - approbation . . . methods
 - contretemp . . . strategies
- DIRECTIONS for question 76:** The following question presents four statements, three of which, when placed in appropriate order, would form a contextually complete paragraph. Pick the statement that is not part of the context.
- 76.**
- I find it encouraging that people were so excited about the prospect of observing a GRB, despite it being a false alarm, such public enthusiasm for science on display is refreshing.
 - It's been a tumultuous week in astronomy - related false alarms.
 - But despite the excitement and speculation as to whether the detected emission was a gamma-ray burst (GRB) or an ultraluminous x-ray (ULX), it turns out the reading was a false alarm.
 - This week, social media buzzed rather excitedly about a "possible gamma ray burst detected in Andromeda."

DIRECTIONS for questions 77 to 80: Answer the questions on the basis of the information given below.

The principal of an engineering college proposed four different bills to his four student leaders – Suman, Sohan, Sujan and Sobhan. Each of these student leaders either voted for or voted against each of the bills. Further, it is known that

- Sujan voted against the Lab bill but voted for the Canteen bill.
 - each student leader voted for exactly two bills.
 - each of the Excursion bill and the Transport bill was voted for by exactly two student leaders and the Canteen bill by three student leaders.
 - Sohan voted against the Excursion bill and Suman voted for the Transport bill.
 - no student leader who voted for the Transport bill voted for the Lab bill.
- 77.** If all the student leaders who voted for the Transport bill also voted for the Canteen bill, then which of the following statements is definitely true?
- The student leader who voted for the Lab bill did not vote for the Excursion bill.
 - The student leader who voted for the Lab bill also voted for the Canteen bill.
 - Exactly one student leader voted for the Excursion bill as well as the Transport bill.
 - Exactly one student leader voted for the Excursion bill as well as the Lab bill.
- 78.** If Sobhan voted against the Transport bill, then which of the following statements cannot be true?
- None of the bills voted for by Suman was voted for by Sohan.
 - None of the bills voted for by Suman was voted for by Sobhan.
 - Suman and Sohan voted for the same bills.
 - Suman and Sujan voted for the same bills.
- 79.** If none of the bills voted for by Sohan was voted for by Sobhan, then which of the following statements must be true?
- Sobhan voted for the Excursion bill and the Lab bill.
 - Sobhan voted for the Transport bill and the Excursion bill.
 - Sujan voted for the Canteen bill and the Excursion bill.
 - Suman voted for the Transport bill and the Excursion bill.
- 80.** If every student leader other than Sobhan, voted for exactly one of the two bills voted for by Sobhan, then which of the following pairs voted for at least one bill in common?
- Suman and Sohan
 - Suman and Sujan
 - Sohran and Sujan
- Only I
 - Only II and III
 - Only III
 - Only I and II

DIRECTIONS for questions 81 to 86: Read the passage given below and answer the questions that follow it.

Structuralism was influenced by linguistics, especially by the pioneering work of Saussure. Particularly useful to structuralists was Saussure's concept of the phoneme (the smallest basic speech sound unit) and his idea that phonemes exist in two kinds of relationships: diachronic and synchronic. The concepts of onset and rime in language were already known. The onset corresponds to any initial consonants in a syllable, the rime to the vowel and following consonants. Although structuralism was largely a European phenomenon in its origin, it was also influenced by American thinkers like Noam Chomsky, who powerfully influenced structuralism through works such as *Reflections on Language* (1975) and distinguished between "surface structures" and "deep structures" in language and linguistic literatures.

Cognitive scientists today describe language as a psychological faculty, a specialized skill or instinct, developing in children spontaneously, without conscious effort or formal instruction. It does not depend on education but on a brain which provides the urge to act, the competence to succeed.

Language, like everything else in this universe, is perpetually in a state of change. It gradually transforms itself over the centuries. In a world where tadpoles change into frogs, and milk turns into cheese, it would be strange if language alone remained unaltered. As Saussure noted: 'Time changes all things: there is no reason why language should escape this universal law.'

Yet, many intelligent people condemn language change, regarding alterations as due to unnecessary laziness or ignorance. "We are in danger of losing our past subjunctive." English has become unintelligible ("between you and I", "these sort", "the media is"). It is rapidly becoming a language which the English can't pronounce and few foreigners can understand. These views are neatly summarized in Ogden Nash's poem, 'Laments for a dying language':

Coin brassy words at will, debase the coinage;
We're in a "slovenliness provides its own excuse" age.
Farewell, farewell to my beloved language,
Once English, now a vile orangutangle.

Expressions of disgust about language, and proposals for remedying the situation, were at their height in the eighteenth century. Two powerful social factors combined to convert a normal mild nostalgia for the language of the past into a quasi-religious doctrine. The first was a long-standing admiration for Latin, and the second was powerful class snobbery. There was admiration for written language which appeared to have a fixed correct form and a full set of endings. There arose a widespread feeling that someone ought to adjudicate among the variant forms of English, and tell people what was 'correct'. The task was undertaken by Samuel Johnson who had an illogical reverence for his social betters. When he attempted to codify the English language in his famous dictionary he selected middle- and upper-class usage. By stating that he had 'laboured to refine our language to grammatical purity, and to clear it from colloquial barbarisms, licentious idioms, and irregular combinations', he had pronounced against the spoken language of the lower classes.

However, other purists (whose statements and strictures were related not to usage, but to their own prejudices) like Robert Lowth set out to put matters right by laying down 'rules', which were often based on currently fashionable or even personal stylistic preferences. He insisted on the pronoun I in phrases such as "wiser than I", condemning lines of Swift such as "she suffers hourly more than me", quite oblivious of the fact that many languages, English included, prefer a different form of the pronoun when it is detached from its verb: compare the French "plus sage que moi" (wiser than me), not "*plus sage que je". Today, "wiser than I" is 'better' than "wiser than me."

Purism does not necessarily make language 'purer'. Nor does it always favour the older form, merely the most socially prestigious. In brief, the puristic attitude towards language has its origin in a natural nostalgic tendency, supplemented and intensified by social pressures. It is impossible to pin down to any firm base. Purists behave as if there was a vintage year when language achieved a measure of excellence which we should all strive to maintain. In fact, there never was such a year. Chaucer's and Shakespeare's language was no better or worse than that of our own – just different.

Lowth's grammar, which is **bespattered** with pompous notes in which he deplores the lamentable English of great writers and which lays down artificial rules to impose some arbitrary standard of 'correctness' is prescriptive, it prescribes what people should say. It may have little to do with what people really say, a fact illustrated by Eliza Doolittle in Bernard Shaw's play Pygmalion: "I don't want to talk grammar, I want to talk like a lady."

In fact, we are so used to speaking and being understood that we are not usually aware of the rule-governed nature of our utterances. We only pause to think when the rules break down, or when someone uses different rules. Alice in Looking-Glass Land tried to communicate with the Frog, whose subconscious language rules differed from her own. She asked him whose business it was to answer the door:

'To answer the door?' he said. 'What's it been asking of ?'
'I don't know what you mean,' she said.
'I speaks English, doesn't I?' the Frog went on. 'Or are you deaf?'

- 81.** In which of the following choices are **ALL** the examples echoing the point of view about language as expressed in the boldface part of the text (in para 2)?
- A spider knows how to spin a web; bees collecting nectar from flowers; a pre-schooler's tacit knowledge of grammar.
 - A lion being trained in a circus to jump through the ring; a horse being trained to run a derby; a donkey or yak being trained to carry heavy loads.
 - A baby monkey learning to climb a tree; a lion cub learning to jump over a wall; a snake moulting its skin; the linguist looking for latent meaning behind obvious words and symbols that help explain a certain context.
 - A German Shepherd tracking down a criminal; a chess player's strategic move against an aggressive opponent; a stock-broker's quandary in raising money from the market; the anthropologist researching into socio-political symbols that pervade the national consciousness of the people of a country.
- 82.** The author of the passage is most likely to subscribe to which of the following opinions?
- Languages must be slowly evolving to a more efficient state.
 - We might be witnessing the survival of the fittest with existing languages adapting to the needs of the times.
 - Humans do not learn pseudo rules but real ones which codify the actual patterns of the language and they follow them subconsciously.
 - Not only are the strictures set on language often arbitrary, but, in addition, they cannot usually be said to purify the language in any way.
- 83.** The tone of the passage can be most appropriately described as
- Light and literary
 - Mildly sarcastic and ironic
 - Didactic and pedantic
 - Critically illuminating
- 84.** Which of the following statements can be understood from the passage?
- The third paragraph can be summarized by the statement: There can never be a constancy in language; by nature it is a continuous process of development.
 - The author attributes eighteenth century purism mainly to the persistence of the idea that a language with a full set of endings for its nouns and verbs being superior to one without these appendages.
 - The onsets in ro : man : tic are /r/, /m/, and /t/, and the rimes correspond to the spelling patterns 'o', 'an', and 'ic'.
 - An awareness of mythemes appears to precede reading, whereas an awareness of phonemes at every serial position in a word only appears to develop as reading is taught.
- 85.** All of the following statements are true from the passage EXCEPT?
- Saussure believed that the rules of language change through time.
 - "Laments for a dying language" is Nash's way of airing his grievances with the English language.
 - Samuel Johnson's dictionary for the English language attempted to lay down rules of good usage but preferred the upper-class language over that of the lower class.
 - The frog in Looking-Glass Land is idiomatically challenged.
- | | |
|----------------|-------------|
| (A) a, b and c | (B) b and c |
| (C) a, c and d | (D) Only d |
- 86.** All of the following statements are true from the passage EXCEPT?
- Structuralism would have died a premature death if the concept of phoneme had not been elucidated.
 - The word 'bespattered' in the penultimate paragraph contextually implies 'to be splashed with.'
 - The French do not insist on the pronoun I in phrases such as "plus sage que moi".
 - Eliza in Shaw's Pygmalion is more interested in refined conversation than in acquiring grammar rules.
- | | |
|-------------|-------------|
| (A) Only a | (B) b and d |
| (C) c and d | (D) a and c |

DIRECTIONS for questions 87 to 89: Answer the questions on the basis of the information given below.

Five friends – Pramod, Khan, Naveen, Samuel and Tarun – have a total amount ₹146 among them. The following information is also known about the amounts with each of them:

- None of them has less than ₹20.
 - The amount (in ₹) with each of the persons except one, is an odd natural number.
 - The amounts with no two persons are the same.
- 87.** What is the maximum possible difference between the highest and the least amount with any two of the persons?
- | | |
|---------|-------------------|
| (A) ₹35 | (B) ₹36 |
| (C) ₹37 | (D) None of these |
- 88.** What is the least possible difference between the highest and the least amount with any two of the persons?
- | | | | |
|-------|-------|-------|-------|
| (A) 6 | (B) 7 | (C) 8 | (D) 9 |
|-------|-------|-------|-------|
- 89.** If each of the odd amounts is a multiple of 3, then which among the following values cannot be the difference between the amounts with any two of the persons?
- 5
 - 7
 - 11
 - 24
 - 25
- | | |
|------------------------|------------------------------|
| (A) Only (i) and (iii) | (B) Only (iii), (iv) and (v) |
| (C) Only (iii) | (D) Only (iv) and (v) |

DIRECTIONS for questions 90 to 95: Read the passage given below and answer the questions that follow it.

Deconstruction, an exercise in which unraveling – of meaning and coherence, of the kind of binary logic that tends to populate philosophical texts – is the path to illumination. In Derrida's reading, Western philosophers' preoccupation with first principles, a determination to capture reality – truth, "presence" – what he called in reference to the

phenomenologist Edmund Husserl "the thing itself" – was doomed. He traced this impulse in thinkers from Aristotle to Heidegger, famously arguing, for example, that a tendency to favour the immediacy of speech over the remoteness of writing was untenable. (Aristotle's formulation: "Spoken words are the symbols of mental experience and written words are the symbols of spoken words"). Through a series of deft and delicate manoeuvres, Derrida sought to show that speech is inextricable from writing, no more or less authentic. The difference between the two depends, as all differences do, on a process of enforced absence or repression: *a* is *a* only because it is not *b*, and thus *b* is never entirely out of picture.

With the tenacity of a gumshoe, he haunted texts by Plato, Rousseau, Saussure, Levi-Strauss, Marx, and Hegel, among dozens of others, exposing the ways in which the subjugated or banished half of a crucial pair – inside/outside, man/woman, reason /madness, signifier/ signified – continued to plague its partner. His close readings were at once highly specific and abstract, but lent themselves to extrapolation. As the scholar Mark C. Taylor neatly put it: "The guiding insight of deconstruction is that every structure – be it literary, psychological, social, economic, political or religious – that organizes our experience is constituted and maintained through acts of exclusion." And what is excluded "does not disappear but always returns to unsettle every construction, no matter how secure it seems".

90. Deconstruction addresses which of the following issues related to Husserl's interpretation of "Presence"?
 - (A) How the fluidity of thought cannot be captured by the obstinacy of meaning.
 - (B) How interpretations of primary meaning do not subscribe to the value of truth.
 - (C) How an emphasis on immediate access to meaning undermines critical thinking.
 - (D) How openness and transparency facilitate complete comprehension of meaning.

91. The author mentions Aristotle primarily in order to
 - (A) argue that speech is as authentic as writing.
 - (B) identify certain philosophers who favour the fixedness of writing to the immediacy of speech.
 - (C) establish a standard of comparison for Derrida as a deconstructive reader.
 - (D) provide an example of those who perceive primary in speech.

92. Which of the following statements about the inextricability of repression is supported by Derrida?
 - (A) 'a' would be 'a' with 'b'.
 - (B) 'a' would not be 'a' without 'b'.
 - (C) 'a' and 'b' are mutually exclusive.
 - (D) 'a' and 'b' are not mutually exclusive.

93. Derrida suggests that anyone attempting to closely read philosophical texts must confront which of the following dichotomies?
 - (A) Between the privileged and the marginalized.
 - (B) Between the intended meaning and the subverted meaning.
 - (C) Between the reader's impressions and the writer's intent.
 - (D) Between construction and deconstruction.

94. The author mentions "man/woman" to provide an illustration of
 - (A) deconstructed binary oppositions.
 - (B) binary logic.
 - (C) exclusionary binary representation.
 - (D) flawed binary oppositions.

95. Which of the following best states Taylor's main point?
 - (A) A work of philosophy is laden with multiple layers of meaning
 - (B) The openness of relativism is essential to deconstructive interpretations.
 - (C) The excluded returns to destabilize the structures of thought.

- (D) Acts of exclusion are central to philosophy's perception of society.

DIRECTIONS for question 96: Select the correct answer choice for the following question.

96. The Confucian idea of the group took the family as the model and then proceeded to extend this to the state and all under heaven. Confucianists' group interests were superior to those of the individual who should try to fulfill his obligation to the group. Based on this principle, there emerged the distinctions between righteousness and benefit, public and private, and principle and desire. In Confucianism, the chief means for upholding group life was to resort neither to a belief in monotheism nor to violent rule, but to ethics in order to cultivate ideas of loyalty, filial piety, humanity, righteousness, rite and so on. Individual interests must be subordinated to group interests. Moral action was to flow from reason and not be controlled by any external power. Therefore, the Confucian idea of group can be called ethical and normative. These notions of group and ethics tended to relate the characters of individuals from different social levels and were of great perduring force. This enabled feudal economies to develop and flourish. On the basis of this education in a strong sense of the group, there emerged in Chinese history many people with lofty ideas, patriots and national heroes, who sacrificed their lives for the group interest. This notion of group became a pillar for the harmony of families, the unity of the state and the survival of the nation.

Which of the following statements is true with respect to the above Confucianist argument?

- (A) Should an individuals' words and deeds violate the rules of his social status, the individual must be severely punished.
- (B) Confucianism was marked by a strong sense of hierarchical and patriarchal relations; the stability and harmony which Confucianism pursued was based on regarding the patriarch as the head of the clan, and the monarch as representing the groups and enjoying all privileges.
- (C) The idea of the group and ethics as a whole did not strive for individual rights, suppressed individuality and deprived inferiors of rights, which, in turn, generated social instability.
- (D) The obligations one was called to fulfill became tools to preserve the privileges of the upper hierarchy.

Directions for questions 97 to 100: These questions are based on the following information.

Five persons – A, B, C, D and E – are sitting in a row, not necessarily in the same order. Each of them wears a dress of a distinct colour among Green, Blue, Red, White and Yellow.

The following information about their seating arrangement is also known:

- (1) C is adjacent to the person wearing the red dress and also to the person wearing the blue dress.

(2) E and the person wearing the white dress are at the extreme ends.

(3) A is to the immediate right of D and is not adjacent to C.

(4) B is towards the right of the person wearing the yellow dress but towards the left of the person wearing the green dress.

(5) B is not adjacent to D.

97. What is the colour of the dress that C is wearing?

(A) Yellow

(B) Green

(C) White

(D) Either yellow or green

98. If E is wearing the yellow dress, then A would be wearing the dress of which colour?

(A) Blue

(B) Red

(C) White

(D) Green

99. Which of the following persons definitely cannot wear the red dress?
(A) A (B) B (C) D (D) E

100. Consider the following three statements – I, II and III – and study whether the information contained in each of them is sufficient to uniquely and completely determine the seating arrangement and the colours of the dresses of the five persons. Then choose the correct answer option.

(I) The person wearing the yellow dress is sitting adjacent to the person wearing the blue dress.

(II) The person wearing the white dress is sitting adjacent to the person wearing the red dress.

(III) The person wearing the yellow dress is sitting neither next to the person wearing the red dress nor next to the person wearing the white dress.

(A) Statement I and statement II together are sufficient, while statement III alone is also independently sufficient.

(B) Statement II and statement III together are sufficient, while statement I alone is not independently sufficient.

(C) Each of statement II alone and statement III alone is independently sufficient, while statement I alone is not independently sufficient.

(D) Each of statements I, II and III is independently sufficient.

(Key and Solutions for AIMCAT1513N)

Key

SECTION – I

- | | | | | | | | | | |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1. A | 6. A | 11. C | 16. B | 21. D | 26. A | 31. B | 36. A | 41. A | 46. A |
| 2. C | 7. B | 12. B | 17. B | 22. C | 27. D | 32. B | 37. B | 42. D | 47. D |
| 3. B | 8. B | 13. B | 18. C | 23. B | 28. B | 33. B | 38. C | 43. A | 48. D |
| 4. C | 9. C | 14. A | 19. A | 24. B | 29. D | 34. D | 39. A | 44. D | 49. D |
| 5. D | 10. D | 15. D | 20. B | 25. B | 30. C | 35. B | 40. C | 45. C | 50. B |

SECTION – II

- | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| 51. C | 56. A | 61. A | 66. B | 71. D | 76. A | 81. A | 86. A | 91. D | 96. C |
| 52. B | 57. B | 62. A | 67. B | 72. B | 77. D | 82. C | 87. C | 92. B | 97. B |
| 53. C | 58. C | 63. D | 68. A | 73. A | 78. D | 83. A | 88. B | 93. A | 98. C |
| 54. C | 59. C | 64. C | 69. D | 74. C | 79. C | 84. C | 89. C | 94. C | 99. A |
| 55. A | 60. B | 65. B | 70. D | 75. B | 80. B | 85. D | 90. C | 95. C | 100. C |

Solutions

SECTION – I

Solution for question 1:

$$\begin{aligned}
 1. \quad & \frac{5}{2} + \frac{9}{4} + \frac{17}{8} + \frac{33}{16} + \dots \text{10 terms} \\
 & = 2 + \frac{1}{2} + 2 + \frac{1}{4} + 2 + \frac{1}{8} + 2 + \frac{1}{16} + \dots \text{10 terms} \\
 & = (2 + 2 + \dots \text{10 terms}) + \left(\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \dots \text{10 terms} \right) \\
 & = 20 + \frac{1}{2} \cdot \frac{1 - \frac{1}{2^{10}}}{1 - \frac{1}{2}} = 20 + 1 - \frac{1}{2^{10}} = 21 - \frac{1}{2^{10}}. \\
 & \text{Choice (A)}
 \end{aligned}$$

Solutions for questions 2 and 3:

2. Let the escalator have a total of n steps and let it have moved through m steps by the time Raju took 20 steps. Therefore, since Rajat runs twice as fast as Raju, the time Rajat takes 30 steps is equal to the time in which Raju takes 15 steps
 \Rightarrow the escalator moved $m \times \frac{15}{20} = \frac{3}{4}m$ steps.
 $\therefore m + 20 = n$ and $\frac{3}{4}m + 30 = n$

Solutions for questions 5 to 9:

The following table gives the percentage marks of the given scores.

Student	Set	QA			DI			VA			Overall		
		M	PG	PL	M	PG	PL	M	PG	PL	M	PG	PL
A	1	70	77.7		70	70		60	75	98.5	200	74	
B	2			97	80	80	99			97			
C	4	85	85				97	75	75	98.5			99
D	2	70	70	98	60	60	94	70	77.7	98.7	200	69	
E	3	65	72.5				98	64	71.1	95			
F	1			99	60	60	94	70	87.5	99			
G	3			97.5	60	66.6		80	88.8				98
H	4	80	80	98.8	70	87.5				96			

PG – Percentage

PL – Percentile

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AIMCAT1513N.Sol/1

5. As D got overall percentage as 69, the number of persons who will surely get more than 69% is the required answer. A got more percentage, than D.
As B got 97 percentile in QA and it is the least among the given, he can get less than D.
C got 160 marks in two sections and at least 60% in DI (97 percentile)
⇒ Total minimum score = 160 + 48 = 208, which is more than 74%. Similarly we can find for others.
∴ A, C, F and H got more percentile than D.

Choice (D)

6. The least and the highest marks of F in QA are 73 and 90.
⇒ His total marks are between 203 and 220.
⇒ His percentage is between 75.2 and 81.5
The maximum possible score of G, who got 98 percentile is $62 + 60 + 80 = 202$ i.e., 74.8, which is less than that of F.
∴ F got more than 98 percentile.
Similarly, we can find the percentage scores of C, who got 99, where F can get more than or less than that of C. Hence F can even get more than 99 percentile. But he cannot get a percentile less than 98. Choice (A)

7. From the above solutions, A, C, F and H got more percentile than D.
E can have a maximum score of 200 (74.07%) which is always less than the minimum score of C i.e., 208 (74.28%).
Hence E cannot be the topper. Choice (B)

8. Total score of E = $65 + (60\% \text{ to } 80\%)$ of $90 + 64 = 183$ to 201. ⇒ His percentage score is between 67.77 and 74.44.
Choice (B)

9. From the given table, we know that, in VA section, a student with 71.1% gets 95 percentile and with 75% gets 98.5 percentile.
B & H have a percentile of 97 and 96 respectively, so their percentage of marks in VA sections should be greater than 71.1% and less than 75%.
As the marks scored by the students is an integer, H can score 72 (72%), 73 (73%) (or) 74(74%) marks in VA section.
B should have a percentage score more than H. The marks which B can score are 65 (72.22%), 66(73.33%) and 67(74.44%).
The different combination of (b, h) are (65, 72) (66, 72), (66, 73), (67, 72), (67, 73), (67, 74). Choice (C)

Solutions for questions 10 and 11:

10. Given that there are 10 pairs of white socks, 12 pairs of black socks and 14 pairs of yellow socks.
Consider that I pick exactly three socks. The worst possible scenario is that each is of a different colour. However, the fourth will be of the same colours as one of the first three. Hence, it is sufficient to draw four socks to be certain of getting one pair of socks of the same colour. Choice (D)
11. Even if $(12 + 14) \times 2 = 52$ socks are picked, I could (in the worst case) end up with 12 pairs of black and 14 pairs of yellow socks. But if I pick two more socks, that is a total of 54 socks, I can be certain of drawing at least one pair of socks of each colour.
Choice (C)

Solutions for questions 12 and 13:

12. There are six possible pairs of balls that can be involved in a collision
(${}^4C_2 = 6$)
Now out of 57 collisions, 54 collisions can first be distributed as equally as possible among the six pairs. Hence each possible pair of balls collided.
 $\frac{54}{6} = 9$ times. Then the remaining three collisions must be done by some three of the six pairs.

⇒ at least one pair of balls collided $9 + 1 = 10$ times i.e., at least one ball collided at least 10 times with the same ball. Hence a statement that says "No ball collided ten times or more with the same ball" is not true. Among the three pairs that were assigned a collision each, at least one more ball is involved twice, hence this ball would have collided another two times besides the earlier $9 \times 3 = 27$ times. Hence, at least one ball collided at least $27 + 2 = 29$ times. Statement IV is also definitely false. This is since, it is not possible for exactly one ball (say blue ball) to collide exactly 53 times with the same ball (say red ball), because inevitably the second ball, i.e., red ball, also would have collided exactly 53 times with the same ball, i.e., the blue ball (since a collision is always mutual).

Hence, statements I, II and IV are definitely false.

Choice (B)

13. $x_{n+1} = 5x_n + 3 - 12n$
 $x_0 = 1$
 $\therefore x_1 = 5x_0 + 3 - 12(0) = 8$
 $= 5^1 + 3(1)$
 $x_2 = 5x_1 + 3 - 12(1)$
 $= 31 = 5^2 + 3(2)$
 $x_3 = 5x_2 - 12(2) + 3$
 $= 134 = 5^3 + 3(3)$
 $\therefore x_n$ can be seen to have a general form of $5^n + 3n$
 $\therefore x_{200} = 5^{200} + 3(200) = 5^{200} + 600.$ Choice (B)

Solutions for questions 14 and 15:

14. The number of balls in each basket is actually the sum of all the factors of the number on the basket. Hence, the basket numbered 'n', with the sum of factors of n being the maximum, will be the answer.
Now sum of factors of n
 $= a^p.b^q.c^r\dots \left(\frac{a^{p+1}-1}{a-1}\right)\left(\frac{b^{q+1}-1}{b-1}\right)\left(\frac{c^{r+1}-1}{c-1}\right)\dots\dots$
- $$S_{96} = \frac{2^6 - 1}{2 - 1} \cdot \frac{3^2 - 1}{3 - 1} = 252$$
- $$S_{98} = \frac{7^3 - 1}{7 - 1} \cdot \frac{2^2 - 1}{2 - 1} = 171$$
- $$S_{100} = \frac{2^3 - 1}{2 - 1} \cdot \frac{5^3 - 1}{5 - 1} = 217$$
- $$S_{90} = \frac{3^3 - 1}{3 - 1} \cdot \frac{2^2 - 1}{2 - 1} \cdot \frac{5^2 - 1}{5 - 1} = 234$$
- Choice (A)

15. For this condition to be true the number on the basket should be equal to the sum of its factors.
i.e., a perfect number
⇒ $n = 6$, and 28 are the only two possibilities.

Choice (D)

Solutions for questions 16 and 17:

16. Let n and m be the two prime numbers when n is divided by m, we get r as quotient and also r as remainder
 $\Rightarrow n = mr + r = r(m + 1)$
 but n is prime
 $\Rightarrow r = 1$ and $m + 1 = n$
 $\Rightarrow m, n$ are consecutive and prime, this is true only for $n = 3, m = 2$. Only 1 case. Choice (B)
17. $1919999999915 = 19200000000000 - 85$
 $= (\text{some multiple of } 24) - 85$
 $\therefore 1919999999915$ hours later would mean 85 hours less than an integral number of days later, i.e., 13 hours less than an integral number of days later (which is also same as 11 hours more than an integral number of days)
 \therefore The time then would be 2:00 a.m. + 11 hours, i.e., 1 p.m. Choice (B)

Solutions for questions 18 to 21:

18. At least 10% growth in production from 2003-04 to 2004-05 can be seen in the graphs for:
 (i) Wheat (from 590 to 660)
 (ii) Sugarcane (from 2320 to 2760)
 (iii) Cotton (from 105 to 130)
 (iv) Jute (from 80 to 95) Choice (C)

19. The percentage growth during the period 2001-02 to 2006-07 for all the choices are as given below:

$$(1) \text{ Cotton} = \frac{145 - 95}{95} \times 100 = 52.63\%$$

$$(2) \text{ Oilseeds} = \frac{250 - 180}{180} \times 100 = 38.89\%$$

$$(3) \text{ Coarse Cereals} = \frac{340 - 280}{280} \times 100 = 21.4\%$$

$$(4) \text{ Pulses} = \frac{145 - 120}{120} \times 100 = 20.83\%$$

The average annual growth percent would be the highest for Cotton (i.e. $\frac{52.63}{6}\%$) Choice (A)

20. Let us calculate the highest percentage growth over the previous year's production, for each category:

As we can see from the graphs the only possibilities are for Coarse Cereals, Pulses and Sugarcane. If we check for these we can get the answer.

$$(1) \text{ Pulses} - \text{year 2006-07} = \frac{145 - 122}{122} \times 100 = 18.85\%$$

$$(2) \text{ Coarse Cereals} - \text{year 2002-03} = \frac{370 - 280}{280} \times 100 = 30.2\%$$

$$(3) \text{ Sugarcane} - \text{year 2004-05} = \frac{2760 - 2320}{2320} \times 100 = 19\%$$

Hence, required percentage is for Coarse Cereals. Choice (B)

21. It can be observed that in the year 2006-07, eight of the nine given categories showed an increase in production.

Choice (D)

Solution for question 22:

22. Let the number of mangoes purchased by B = x.

	A	B
Mangoes	$x + 23$	x
Bananas	$7 - x$	$40 - x$

Let the price of one mango and one banana be M and B respectively.

Given that

$$Mx + 23M + 7B - xB = Mx + 40B - xB$$

$$\Rightarrow 23M = 33B$$

$$\therefore M : B = 33 : 23$$

$$\text{Given } M - B = 10$$

$$\therefore M = 33 \text{ and } B = 23$$

Alternative Solution:

A has 23 mangoes more, when compared to B, but has 10 fruits less on the whole. Therefore, B must have 33 bananas more, when compared to A. Since, the two of them spent equal amounts, extra expenditure by A on mangoes (over B) = extra expenditure by B on bananas (over A).

$$\Rightarrow 23 \times \text{cost of a mango} = 33 \times \text{cost of a banana}$$

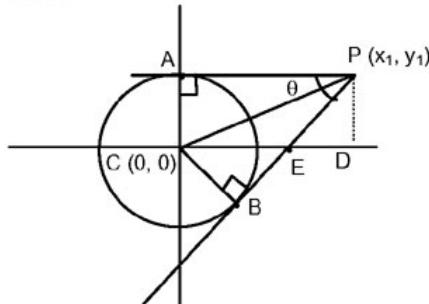
Since each banana costs ₹10 less than a mango cost of banana = ₹23 and mango = ₹33
Choice (C)

Solutions for questions 23 and 24:

23. Given, radius of the circle is 'r' cm and centre of the circle is C (0, 0).

Statement (I):

Let the tangent PA be parallel to x-axis. Clearly, point P can be altered



Along the line parallel to x-axis and hence the angle made by the other tangent with x-axis cannot be determined uniquely.

\therefore Statement (I) alone is not sufficient.

Statement (II): Let (x_1, y_1) be the co-ordinates of the point P. Then, from $\triangle CPA$, using trigonometric ratios we can find $\angle CPA$ and hence angle between the tangents $\angle APB$ ($= 2 \angle CPA$) can be evaluated. Now, from $\triangle PCD$ using trigonometric – ratios, we can find $\angle CPD$.

From $\triangle PDE$, $\angle DPE = \angle CPD - \angle CPB$ [$\because \angle CPB = \angle CPA$]

$$\Rightarrow \angle DEP = 90^\circ - \angle DPE$$

Similarly, the angle made by the other tangent with x-axis can be found

\therefore Statement (II) alone is sufficient. Choice (B)

24. Given equations are

$$ax + by = 1 \quad \dots (1) \text{ and}$$

$$cx + dy = 3 \quad \dots (2)$$

Statement (I): Given $a = ck$ and $b = dk$

\therefore from (1), we have $k(cx + dy) = 1$

$$\Rightarrow cx + dy = \frac{1}{k}$$

If $k \neq \frac{1}{3}$, the given lines represent two distinct parallel lines

and hence no solution exists. However, if $k = 1/3$ then the lines coincide and infinite solutions exist.

\therefore Statement (I) alone is not sufficient

Statement (II):

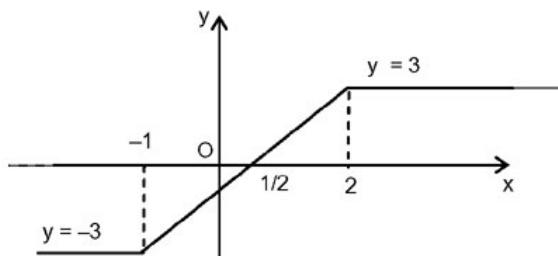
Given, $a = 1$, $b = 2$, $c = 3$ and $d = 4$

The equations (1) and (2) represent two distinct lines and hence have a unique solution.

\therefore Statement (II) alone is sufficient. Choice (B)

Solutions for questions 25 to 29:

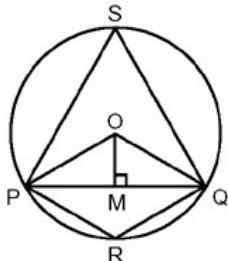
25. The plot of $y = |x + 1| - |x - 2|$ is



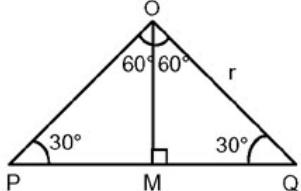
So the range of $y = -3 \leq y \leq 3$.

Choice (B)

26.



Let PQ be the chord of the circle with centre O. Let R and S be points on the minor arc and major arc respectively.
Given that $\angle POQ = \angle PRQ = x^\circ$ (say)
 $\Rightarrow \angle POQ = 2(\angle PSQ) = 2(180^\circ - x^\circ)$
 $(x^\circ = 360^\circ - 2x^\circ \Rightarrow x = 120^\circ)$
 \therefore In the triangle OPQ, let $OP = OQ = r$ (the radius of the circle).



The chord parallel to PQ, which is equal in length to PQ, is twice as far from PQ as the centre itself.

$$\Rightarrow \text{The distance between the chords} = 2\left(\frac{r}{2}\right) = r$$

\therefore The ratio of the radius and the distance = $1 : 1$
Choice (A)

27. Consider the following set of values of a, b, c, p, q, r.
 $a = 4, b = 16, c = 8$

$$p = 3, q = 2, r = 1$$

$$a^{p-q} b^{q-r} c^{r-p} = 4^{(3-2)} 16^{(2-1)} 8^{(1-3)} = 4^1 (16^1) (8^{-2}) = 1$$

\therefore None of choices 1, 2, 3 is true. Choice (D)

28. Given that N is divisible by 88 and 72.

\Rightarrow N is divisible by 8, 9 and 11. When N is divisible by 8, the number formed by the last three digits of N (taken in same order) must be divisible by 8.

$$\Rightarrow 66z \text{ is divisible by 8}$$

$$\Rightarrow z = 4.$$

When N is divisible by 9, the sum of the digits of N must also be divisible by 9.

$$\Rightarrow (x + y + 31) \text{ is divisible by 9.}$$

$$\Rightarrow (x + y + 31) = 36 \text{ or } 45$$

It cannot be 54 or a higher multiple, because in that case at least one of x and y must be greater than 9.

$$\Rightarrow x + y = 5 \text{ or } x + y = 14 \dots (1)$$

For N to be divisible by 11, the difference of the sum of the digits in the even and odd positions is a multiple of 11.

$$\Rightarrow (x + y + 13) - 18 = 11k \Rightarrow x + y = 11k + 5$$

\Rightarrow only $k = 0$ can be consistent with the possibilities in (1)

$$\Rightarrow x + y = 5$$

$$\therefore (x, y) = (1, 4), (2, 3), (3, 2), (4, 1) \text{ and } (5, 0).$$

For each pair of (x, y) exactly one value of N is possible.
Hence, N can take 5 values. Choice (B)

29. The first time they meet after $\frac{5 \text{ km}}{(6+4) \text{ kmph}} = \frac{1}{2} \text{ hour}$

$$= 30 \text{ minutes}$$

The next time they will meet in half this time and the time will continue to decrease by half each time.

\therefore The times will follow the pattern:

$$30 + 15 + \frac{15}{2} + \dots$$

$$\text{The sum to infinity of this series is } \frac{30}{\left(1 - \frac{1}{2}\right)} = 60 \text{ minutes}$$

\therefore Within one hour they will meet infinite number of times.
Choice (D)

Solutions for questions 30 to 34:

30. Only IMK and IML are dominated by one or more of the other institutes. All other institutes are ideal. Choice (C)
31. IMA > IMK and IMA > IML. Also IMB > IML and IML > IMK. Statement (d) is wrong as IMC has less average number of offers than IML. Choice (B)
32. Average foreign salary in Indian rupees = 48,00,000
Average Indian salary = 7,90,000
Total average salary = 11,25,000
Using the concept of alligation
 \therefore Ratio of Indian placement and foreign placement at IIMA.
 $= \frac{4800000 - 1125000}{1125000 - 790000} = \frac{36.75}{3.35} \approx \frac{11}{1}$ Choice (B)

33. Only IMA and IMB dominates IML while IMC does not as average number of offers per student at IMC is less than that at IML. IML dominates IMK, but this is not the reason for IML to be not 'ideal'. So only (a) & (b) are reason for IML to be called not ideal. Choice (B)
34. Since we don't have any information about break up of foreign and Indian placement and which offers were rejected, average salary cannot be determined.
Choice (D)

Solutions for questions 35 to 41:

35. Let the number of brown sarees be x. Let the number of shirts not having a design be y.

Shirts	Sarees			
	Yellow	5x	Hand spun	4k
Having Design	3y	Black	2x	
Not having Design	y	Brown	x	Not Hand spun
Total	4y		8x	5k

Hence total number of sarees, say N = 8x = 5k

The least such number is $8 \times 5 = 40$.

$$\text{Given } 4y + N = 72$$

$$\Rightarrow N = 40 \text{ itself and } 4y = 32$$

$$\Rightarrow \text{Shirts not having design} = y = 8.$$

Choice (B)

36. As for II the divisors are larger than those for the other conditions, we will obtain the least number of numbers satisfying II when considering the numbers satisfying any one of the conditions alone.

Let the general form of the numbers satisfying II be $17k_1 + 6$ as well as $38k_2 + 24$, where k_1 and k_2 are whole numbers.

$$17k_1 + 6 = 38k_2 + 24$$

$$17k_1 = 38k_2 + 18$$

$$k_1 = 2k_2 + 1 + \frac{(4k_2 + 1)}{17}$$

As k_1 is a natural number, $4k_2 + 1$ must be divisible by 17. Least value of k_2 satisfying this condition is 4.

\therefore the numbers are of the form L.C.M.(17, 38)k + [38(4) + 24], where k is a whole number = $646k + 176$

If $k \geq 2, 646k + 176 > 1000$

When $k = 0$ and $k = 1$, possible numbers satisfying II are obtained as 176 and 822 respectively. 176 satisfies the other two conditions while 822 does not satisfy the other 2 conditions.

Choice (A)

37. Let Ajay do 'x' work in one day.

Bhanu does '2x' work in one day.

Chandu does '4x' work in one day and

Dinesh does '8x' work in one day.

From x, 2x, 4x, 8x we need to form two pairs such that sum

of one pair = $\frac{1}{\left(\frac{2}{3}\right)}$ of the other paid

By observation, we get $n + 8x = \frac{3}{2}(2x + 4x)$

A and D, when paired up together, they do $\frac{3}{2}$ work for B &

C together. So A + D take $\frac{2}{3}$ times the time taken by B+C to complete the work. Choice (B)

38. $15x^2 - 22xy + 8y^2 = 0$
 $(3x - 2y)(5x - 4y) = 0$

$$\Rightarrow \frac{x}{y} = \frac{3}{2} \text{ or } \frac{5}{4}$$

$$\Rightarrow \frac{x}{y} = \frac{3}{2}, \frac{6}{4}, \frac{9}{6}, \dots, \frac{99}{66}$$

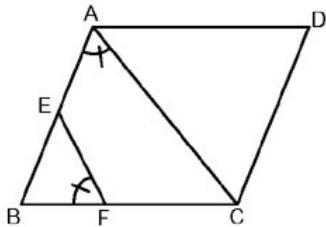
(or)

$$\frac{x}{y} = \frac{4}{8}, \frac{8}{10}, \frac{12}{15}, \dots, \frac{80}{100}$$

$\therefore (x, y)$ has 33 possible pairs for $\frac{x}{y} = \frac{3}{2}$ and 20 possible

pairs for $\frac{x}{y} = \frac{5}{4}$. Hence, a total of 53 pairs. Choice (C)

39.



Given that $\frac{AB}{BC} = \frac{2}{3}$

$$BE = \frac{AB}{2} = \frac{BC}{3}$$

$\triangle BEF$ is similar to $\triangle BCA$ as $\angle B$ is the common angle and $\angle EFB = \angle BAC$

$$\frac{BF}{AB} = \frac{1}{3}$$

If $AB = 2x$ and $BC = 3x$, $AE = EB = x$ and $FC = x + 8$ and $BF = 3x - (x + 8) = 2x - 8$

$$\text{Then } \frac{EB}{BC} = \frac{BF}{AB} \Rightarrow \frac{1}{3} = \frac{2x - 8}{2x}$$

$$\Rightarrow x = 6\text{cm}$$

$$\Rightarrow AB = 12, BC = 18 \text{ and perimeter} = 2(12 + 18) = 60 \text{ cm.}$$

Choice (A)

40. Divisors : $x \quad x \quad y$
 Remainders : $1 \quad 4 \quad 4$

$$\therefore \text{Minimum value of } P = (4x + 4)x + 1 = (2x + 1)^2$$

Also x is at least 5 since the remainder when divided by x is given as 4.

For P to assume the least possible value, x must be minimum. Here, x is at least 5.

$\therefore P$ is at least 121.

P is of the form k times $[(x)(x)(y)] + 121$. Hence P need not be odd or a perfect square (though 121 is both). Only statement III is definitely true. Choice (C)

41. Numbers which are not prime are composite (excluding 1). If there are 10 non-negative even numbers, at least 8 must be composite, which satisfies the 3rd condition of at least 6 composite numbers. Even number which is prime = 2.
 So, minimum value of $n = 5 + (10 - 1) = 14$

Choice (A)

Solutions for questions 42 to 46:

42. When 6000 watches are produced

Fixed cost = 8 lakhs

Variable cost = 5 lakhs

Total cost = 13 lakhs

Selling price = ₹700

Total sales = $700 \times 600 = ₹42,00,000$

Profit = Total sales – Total cost

= $42,00,000 - 13,00,000 = ₹29,00,000$

Choice (D)

43. When the production is 4000 units

Fixed costs = 5 lakh

Variable cost = 3 lakh

Total costs = 8 lakh

When production is increased to 5000 units

Fixed costs = 8 lakh

Variable cost = 4 lakh

Total cost = 12 lakh

$$\text{Marginal cost} = \frac{12,00,000 - 8,00,000}{5,000 - 4,000} = \frac{4,00,000}{1,000} = ₹400$$

Choice (A)

44. Let us check MC's for a few cases, when production levels are 2000, 3000, 4000 and 8000
 MC for 1000 units produced

$$= \frac{2,80,000}{1000} = ₹280$$

Total cost when 2000 units are produced = 5,20,000

$$\text{MC for 2000 units} = \frac{2,40,000}{1000} = 240$$

Total cost when 3000 units are produced = 6,00,000

$$\text{MC for 3,000 units} = \frac{80000}{1000} = ₹80$$

Total cost when 4,000 units are produced = 8,00,000

$$\text{MC for 4000 units} = \frac{2,00,000}{1000} = ₹200$$

Total cost when 7000 units are produced = 13,50,000

Total cost when 8000 units are produced = 14,00,000

$$\text{MC for 8,000 units} = \frac{14,00,000 - 13,50,000}{8000 - 7000}$$

$$= \frac{50,000}{1000} = 50.$$

No particular pattern can be observed. Choice (D)

45. Since average cost of production is not increasing significantly after 5000 units, maximum profit will be obtained when maximum number of watches are produced. Alternately, one can observe that the AC's for volumes of 1000, 2000, 3000, 4000, 5000, 6000, 7000 and 8000 units are ₹280, 260, 240, 220, 200, 192 and 175 respectively. Hence least Average Cost gives maximum profit at a volume of 8000 units

Choice (C)

46. As calculated in Q.163, we can see that AC is always higher than MC, except when production is 4000 units when AC = MC.

Choice (A)

Solutions for questions 47 to 50:

47. Given that $2(l + b) \leq 100$

but minimum value of $2(l + b)$ will be 4 units.

i.e. 49 possible values that the perimeter can assume for each possible value of $l + b = n$, we have $n/2$ (if n is even) and $(n - 1)/2$ (if n is odd) ways of choosing distinct pairs if l and b .

Value of $(l + b)$ Number of ways

2	1
3	1
4	2
5	2
6	3
.	.
49	24
50	25

$$\begin{aligned}
 &= 2(1+2+3 \dots 25) - 25 \\
 &= 2 \times \frac{25 \times (1+25)}{2} - 25 = 625 \text{ rectangles} \\
 &\quad \text{Choice (D)}
 \end{aligned}$$

48. The minimum possible values of $x^2 y$, $6xy$, xy^2 and $(y-3)^2 x$ are respectively 45, 90, 192 and 12. Hence, $(y-3)^2 x$ has the least minimum value.

Choice (D)

49. When 15 is the hypotenuse it limits the other two perpendicular sides to values less than 15. Thereby limiting the area. Hence we should take 15 as a non-hypotenuse side.

If 15 is one of the perpendicular sides

$$15^2 = c^2 - b^2$$

c is the hypotenuse

$$= (c+b)(c-b)$$

= product of two distinct numbers

$$c+b = 225$$

$$c-b = 1 \text{ so, } b = 112$$

$$\text{largest possible area} = \frac{1}{2} \times 15 \times 112 = 840 \text{ cm}^2$$

Choice (D)

50. Consider all right triangles of hypotenuse AC = 12 cm. The third vertex of the triangle would lie on the circle with AC as a diameter. As the area of $\triangle ABC$ is greater than (or equal to) the area of any such triangle, B has to be the point on the circle where the altitude BM is the greatest, i.e. B has to be the point where the perpendicular bisector of AC intersects the circle.
 $\therefore \triangle ABC$ is isosceles with AB = BC.

Choice (B)

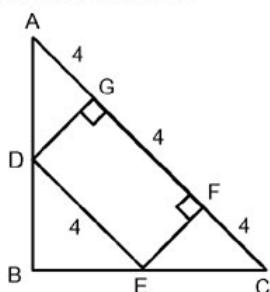
Alternative Solution:

If AC = b = 12 cm, AB = c and BC = a, then $\sqrt{a^2 + c^2}$ = constant.

To maximise the area $\frac{1}{2} \times a \times c$, $a = c$, i.e., the triangle is isosceles.

$$\text{Its area is } \frac{1}{2}(12)(6) \text{ cm}^2 = 36 \text{ cm}^2$$

As DE is parallel to BC and DE = 4 cm, the scaled figure would appear as shown below.



As DEFG is a rectangle $GF = DE = 4$

$\triangle AGD \cong \triangle CFE$ ($\angle A = \angle C$, $\angle G = \angle F$ and $GD = FE$)

$\therefore AG = 4$ and $FC = 4$ and $EF = FC$ and $DG = AG$

($\because \angle A = \angle C = 45^\circ$)

\therefore Rectangle DEFG is a square. Its area is 16 cm^2

<i>Difficulty level wise summary - Section I</i>	
Level of Difficulty	Questions
Very Easy	-
Easy	10, 11, 17, 18, 19, 20, 21, 34, 41
Medium	1, 4, 12, 13, 16, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 37, 39, 40, 42, 43, 44, 45, 46, 48, 49, 50
Difficult	2, 3, 14, 15, 36, 38, 47
Very Difficult	5, 6, 7, 8, 9

SECTION – II

Solutions for questions 51 and 52:

51. The usage of the word 'ease' (easy morals) is incorrect in Choice (C). The sentence should read '...are of easy virtue'. This refers to 'person of loose morals'. The other choices have the correct usage of the word 'ease'. In choice (A), 'ease her conscience' means to lessen the feeling of guilt or embarrassment. In choice (B), 'ease up on something' means to reduce, curtail, decrease, cut down. In choice (D), the idiom 'easier said than done' means 'more difficult than it at first seems.' Choice (C)

52. The usage of the word 'hang' is incorrect in Choice (B). The phrasal verb 'hangs over my head' is required and not 'hangs on.' This means that the entrance exam looms over me or threatens me. The other choices have the correct usage of the word 'hang'. In choice (A), the phrasal verb 'hung up' means to delay or impede or hinder. The idiom 'hanging in the balance' means 'to be in doubt.' In choice (C), the idiom 'hung one's hat' means to settle oneself or take residence. In choice (D), the idiom 'get the hang of it' means 'to grasp, understand, learn or comprehend'.
 Choice (B)

Solution for question 53:

53. A pipe cannot be used to scoop up oil, so we can eliminate option B. Since the other three options for the first blank are contextually appropriate, let us try to fill the second blank. We can infer, after reading the paragraph, that the second blank is to be filled by a word that means, 'made less intense'. That word is 'tempered'. 'Toned down' is a synonym of 'tempered', but 'toned', meaning, 'gave tone to' or 'modified the tone of', is contextually inappropriate. So option A can be eliminated. 'Palliated', meaning, 'relieved or lessened' is also contextually inappropriate, so option D can also be eliminated.
 Therefore, the 1st blank is filled by 'siphon off' and the 2nd blank is filled by 'tempered', and the answer option is C (siphon off.....tempered).

Choice (C)

Solution for question 54:

54. Statement (1) is an inference. This statement when simplified does not mean "All those who lent money to GM....were aware of their dire finances." It actually means "All those who lent money to GM.... must have been aware of their dire finances." Based on the dire state of the company's finances, the author arrives at the understanding that they cannot have been unaware or must have been aware – I.

Since statement (2) starts with the conjunction 'nor', it has to be read with statement 1, and is therefore of the same type as (1) – I.

Statement (3) is a judgement. Here the author is not just reporting to us. His use of 'barely' and 'take a punt' which means 'gamble' are subjective. It is his opinion that creditors and employees were willing to gamble. Not all people may say this (for instance, some may assume that, for such an icon, there would be intervention that would save the company) – J.

Statement (4) is a fact. When the author says the bet has failed, he's just informing us of what's happened – creditors and employees have been brought to the brink of loss – F.

Statement (5) is an inference. The author understands from the fact of bailout, that the authorities want to protect the interests of workers. – I. Hence IIJFI. Choice (C)

Solution for question 55:

55. The structure of the given sentence is: The development of a scientific worldview has been about the replacement of with Choice (A) restates it appropriately. In Choice (B), 'in large part' wrongly qualifies 'development'. Choice (C) is totally mixed up. Choice (D) errs in saying that the replacement is the scientific worldview.
 Choice (A)

Solutions for questions 56 to 60:

It is given that only three of the persons correctly predicted the four semifinalists. Checking in the list of W, LF and SF we have to determine the three persons who have all the four teams in common (in any order as it is given that they correctly predicted the semifinalists). By observation we can see that only for Bala, Feroz and Hema are the four teams common.

∴ One of these persons got all the teams correct (as all the persons got a different number of teams in the correct position, one of them has to get all the eight of them correct, another one six of them correct and so on till the person who predicted none of the teams in the positions that they actually finished). Now assuming Bala got all his predictions correct, both Deepak and Feroz would have six of their predictions correct which is not possible. In case Hema got all her prediction correct, both Amol and Emma would have got exactly two predictions correct which again is not possible.

∴ The only possibility is that Feroz got all his predictions correct, in which case, we have all the eight friends having different values for the number of teams they predicted correctly.

∴ The number of correct predictions for the friends are

Amol – 1
Bala – 6
Chandu – 0
Deepak – 4
Emma – 2
Feroz – 8
Govind – 3 and
Hema – 5

56. Manchester United was the losing finalist of the tournament.
Choice (A)

57. Chandu got none of his predictions correct.
Choice (B)

58. Chelsea won the tournament and only three of them – Bala, Deepak and Feroz had predicted that Chelsea would be the winner of the tournament.
Choice (C)

59. Feroz got all his predictions correct.
Choice (C)

60. 4 out of 8 predictions made by Deepak were correct.
Choice (B)

Solutions for questions 61 to 65:

Number of words and Explanatory notes for RC:

Number of words : 698

61. Refer to the sixth and ninth sentences of para 1. "teach himself this new intellect" and "moves on to precisely sketched" support (A). (B) is true, yet less focused. (C) goes far beyond the scope of the paragraph in question. (D) is plausible, yet infers too much from the para.
Choice (A)

62. (B) is irrelevant. Hortatory means marked by exhortation or strong urging. (D) applies only to the last paragraph, perhaps. (C) is not true. A narration would merely present events or incidents, usually in sequence. In this piece, however, impact and further understanding and development from the incidents are also discussed and this would make it 'expository' – writing that is intended to explain something
Choice (A)

63. Refer to para 2. Pacioli saw a different world: the fluidity of society....., the ordering principle of money. Mathematics was more than abstraction.....It was also the delineation of money. So mathematics was the monetary basis of society. Choice A is not relevant. Choice B is incorrect. Choice C is too objective to be true.
Choice (D)

64. Statement (a) is true. In the fourth para, it has been given that the Summa was written in Italian, the vulgar language of the people. But statement (b) has not been mentioned. Statement (c) is suspect. In the fourth para, it has been mentioned that the section on double-entry book-keeping may not have been original. Statements (d) and (e) can be inferred from the last para.....The tide of currency could momentarily be frozen into icily precise figures.....Statement (f) is incorrect. The said features are true of the Summa and not the Section – Details of Book-keeping and Ledgers.
Choice (C)

65. There is not enough in the passage to infer choice B. Pacioli can be described as an Italian mathematician, the master of book-keeping or a teacher of proportion and perspective.
Choice (B)

Solution for question 66:

66. 'Portentous' means serious or important enough to impress or draw attention. Pretentious means exaggerated or false with the intent to draw attention. Hence (a).
A priori argument uses facts or principles that are known to be true in order to decide what the probable effects or results will be. A posteriori is analyzing starting from known facts (The streets are wet, so it must have been raining). Hence (a)
'Climactic' refers to climax. 'Climatic' means 'climate'. In the context of global warming, it is climatic – (b).
In the fourth sentence, 'lovely' is appropriate. 'Lovely' means beautiful and appropriate. 'Loveable or lovable' means having qualities that people find attractive and easy to love. Hence (a).
Choice (B)

Solution for question 67:

67. The paragraph reiterates the thought that every new idea struggles to achieve fruition. It constantly meets with opposition and difficulties. Just as certain torture instruments kill the spirit, every progressive idea faces tremendous opposition from the traditional Old. {Here, a knout is a heavy scourge-like multiple whip. A rack is an instrument of torture on which the victim's body was stretched. The thumbscrew is a torture instrument which was first used in medieval Europe}. So, is the case with anarchism. It is a novel idea and must meet the same end as other ideas. This thought is best taken forward in Choice (B). The ignorance and the poisons of the traditional world are like thorns in the path of anarchism. Choice (A) has a new point "opposition to anarchism" and does not explain how anarchism cannot escape the negative fate met by other innovative ideas. The para discusses the challenges faced by anarchism. Choice (A) needs a precedent and more elaboration. It shifts focus from anarchism to an active agent that opposes anarchism. Choice (C) cannot conclude the para. The author speaks of "anarchism" in a positive light, so "blood-curdling stories about anarchism" cannot be linked to the penultimate sentence. Also, this can come as an introduction sentence in another paragraph as this choice needs more substantiation. Focus has been shifted to an ignorant man and his emotions. Choice (D) speaks positively about the benefits of anarchism but it cannot end the paragraph as it does not take the thought flow (the inability of anarchism to escape a negative fate) forward.
Choice (B)

Solution for question 68:

68. The given text refers to the promise made by the Samajwadi party to ban English and says that the opposition to English merits consideration. L stands for 'logically concludable from' (not 'about'). That means that the choice statement must be one that can be derived from the question statement. They should not just be factors that support the assertion or the prediction made. In the question, neither statements 1 nor 3 qualify as L. They are both reasons, not derivations, so they can be neither L nor F. Both would actually be I.

Statement 2 refers to the extinction of languages which has not been mentioned in the text, hence irrelevant – I.

Statement 3 is negative in tone - 'foist, in the name of – makes it clear that it is against the imposition of English'. But this is a reason and not a derivation or understanding from the paragraph- I.

Statement 4 again refers to extinction of dialects and so is irrelevant – I.

Hence III.

Choice (A)

Solution for question 69:

69. On a careful reading of the paragraph, it can be seen that statement (5) is a general sentence that begins the paragraph. It introduces the objective of visas which could benefit investors. All the remaining sentences cannot be the opening sentence of the paragraph. "these immigrant investor programmes" in statement (1) relates to the Indian investors' plan to start overseas ventures, referred to in statement (5). So statement (5) is followed by statement (1). Statement (3) gives the reason for the immigrant investor programmes being unable to take off in some countries. So statement (3) follows statement (1). So, 513. Statement (2) follows next as it cites an example of a tough investor visa. It links with "conditions become to tough" given in statement (3). Statement (6) throws more light on the US EB5 visa. So statement (2) is followed by statement (6). Statement (4) offers an exception to what is stated in statements (5) and (3) and concludes the paragraph. So, 513264.

Choice (D)

Solutions for questions 70 to 74:

Number of words and Explanatory notes for RC:

Number of words : 851

70. The concept of depth of the phalanx is discussed in the first paragraph (Sentence 4 onwards). Choices (A), (B) and (C) are mentioned in the first paragraph as critical factors for determining phalanx depth - "Many factors would come into play....." Choice (A) can be identified as a factor from the lines "whether the terrain covered the flanks". Choice (B) is mentioned in the next phrase "whether there was sufficient cavalry and light infantry to protect the flanks". Choice (C) is also given "the relative advantages of a narrow front for hitting power." (D) is discounted – "advantages of a narrow front for hitting power over a wider front to prevent outflanking."

Choice (D)

71. What happens in a tug-of-war?

The more mass on one side pulls the lesser mass on the other. Put that in reverse, you get the more mass on one side pushes the lesser mass on the other Choice (D)

72. In the third sentence of para 4, it has been mentioned that according to Robert Luginbill, whenever two opposing phalanxes 'came to grips,' the physical pressure of othismos (meaning 'shoving') would normally continue until one side literally pushed the other to the breaking point..... If we were to consider Luginbill's words alone, there isn't enough in the passage to suggest that battles were won or lost, only that the opposing phalanxes could be broken. The idea of forcing a retreat doesn't come out of Luginbill's words but from 'others'. Refer to the latter half of para 4 (Others argue that the shove would be the final manoeuvre to force the enemy's retreat). So choice (B) is correct. Choice (A) is incorrect. Choice (C) contradicts the contents of the passage. It denies or discounts the existence of othismos or shove-push. Choice (D) gets into details.

Choice (B)

73. Refer to the fifth paragraph. The first sentence "nature of the phalanx is AS MUCH psychological as physical" doesn't support the use of 'not intended primarily....but rather' in statement (a). So statement (a) is incorrect. The depth of formation combined with determination of the individuals

within it, was of paramount importance. ".....replace wounded men in the front ranks....." as given in the last sentence of the fifth paragraph means that statement (b) cannot be ruled out. The third sentence (After the initial violent contact, the front two rows would fight it out with their spears and swords) supports statement (c). Statement (d) is not true. In the last paragraph, it has been mentioned that "All non-Spartan armies were militia with minimal training." So statements (b) and (c) are correct.

Choice (A)

74. Choice A is true from the line in para 4 - "veterans in the rear would make sure the rookies would hold their ground....." Choice B is true from the last sentence of the passage - "training to keep in step and advancing more slowly.....to win their battles." From the second sentence of para 4, (...putting the relative novices in the middle mass of men, between the most experienced masses who were in the front and rear ranks.....), choice D can be inferred. But choice C is not true. The author talks of 'replacing' the wounded 'in the front ranks', not of the seniors at the rear, arranging for their evacuation (removal from the battlefield). "bringing up the rear" is idiomatic usage for "marching at the back of the column."

Choice (C)

Solution for question 75:

75. We can infer from the sentence that due to the failure or problems caused by the concepts mentioned in the earlier part of the sentence (relationship between actions and motives, and repression) Freud's views were accepted. Hence, a word with negative meaning should fill the first blank. Fortification means to make an attitude or a feeling stronger. Approbation means approval or agreement. Hence, options A and C can be readily ruled out. Contretemp means an 'unfortunate event or embarrassing disagreement with another person' cannot fit in the first blank. Only choice B makes the sentence meaningful.

Choice (B)

Solution for question 76:

76. On a careful reading of the sentences, we are given to understand that the para is about a false alarm. So sentence B sets the background for the para and is the first sentence. The false alarms have been made this week. Sentence D follows. "week" and "tumultuous" in sentence B link with "this week" and "buzzed excitedly" in sentence D. The thought flow continues in sentence C which concludes the para on false alarms. The words "excitedly" and "possible gamma ray burst" in D link with "excitement, speculation" and "GRB" in B. So, BDC. Sentence A is the odd man out and this opinion can be a part of another paragraph as it runs tangent to the text presented through the remaining three sentences BDC. Also the word GRB is expanded only in sentence C.

Choice (A)

Solutions for questions 77 to 80:

From the given information

Person	Bill			
	Excursion bill	Lab bill	Canteen bill	Transport bill
Suman	x			✓
Sohan	x			
Sujan		x	✓	
Sobhan				
Total	2	1	3	2

✓: vote for x: vote against

In the above table, as no person who voted for the transport bill voted for the lab bill, Suman must have voted against the Lab bill.

77. As all the persons who voted for the transport bill voted for the canteen bill.

Suman must have voted for canteen bill

Suman – Excursion bill (x)

Sujan – Excursion bill (✓)

Sobhan – Excursion bill (✓)

Sujan – Transport bill (x)

	Excursion bill	Lab bill	Canteen bill	Transport bill
Suman	x	x	✓	✓
Sohan	x			
Sujan	✓	x	✓	x
Sobhan	✓			

As Sohan must have voted for two bills among the lab bill, the canteen bill and the transport bill and as he should not have voted for the lab and the transport bills at the same time, he must have definitely voted for the canteen bill and Sobhan did not vote for the canteen bill.

⇒ Sobhan did not vote for the transport bill.

⇒ Sohan voted for the transport bill

⇒ Sobhan voted for the lab bill

Statement (D) is true.

Choice (D)

78. Sobhan: Transport bill (x), the possible cases are:

	Excursion bill	Lab bill	Canteen bill	Transport bill
Suman	✓	x	x	✓
Sohan	x	✓	✓	x
Sujan	x	x	✓	✓
Sobhan	✓	x	✓	x

Hence option (D) cannot be true.

Choice (D)

79. Given, Sohan x Sobhan

	Excursion bill	Lab bill	Canteen bill	Transport bill
Suman	x	x	✓	✓
Sohan	x			
Sujan	✓	x	✓	x
Sobhan	✓			

One of Sohan / Sobhan will vote for the Lab bill and one of them will vote against the Canteen bill.

∴ Suman will be voting for the Transport bill and the Canteen bill.

∴ Sujan will be voting for the Excursion bill and the Canteen bill.

Choice (C)

80. From the given condition, we would have obtained the following table.

	Excursion bill	Lab bill	Canteen bill	Transport bill
Suman	✓	x	x	✓
Sohan	x	✓	✓	x
Sujan		x	✓	
Sobhan		x	✓	

Sobhan has exactly one bill in common with Suman, that bill can be either Excursion bill or Transport bill.

From the above table,

(I): Suman and Sohan did not have any common bills.

(II): As Sujan has to vote for one of the bills among Excursion bill and Transport bill, he will have that bill common with Suman.

(III): Sohan and Sujan have voted for Canteen bill.
Hence, both II and III.

Choice (B)

Solutions for questions 81 to 86:

Number of words and Explanatory notes for RC:

Number of words : 875

81. Refer to the second paragraph. Language is instinctive, and not something that is learnt. No conscious effort or formal instruction is required. Spiders spin spider webs because they have spider brains, which give them the urge to spin and the competence to succeed. Similar is the case of bees collecting nectar and a child's knowledge of grammar. Hence Choice (A) is the answer. In Choice (B) (donkey carrying the load, a horse running the derby etc), the actions are neither instinctive nor basic actions attributed to those animals. The animals have to be trained to perform these functions. While C is inappropriate, the first two parts are not – those animals aren't 'taught', they learn on their own, driven by basic inherent understanding. However "a snake moulting its skin" indicates a biological process not prompted by the animal itself. The last bit of course, involves conscious effort by the linguist. In Choice (D), training is involved when a dog is used to track down a criminal. The remaining three actions in Choice (D) depend on learning and decisions based on experience and not instinct.

Choice (A)

82. Choice (A) is unlikely. "The language of Chaucer's or Shakespeare's was no better and no worse than that of our own, just different" has been mentioned in the last sentence of the seventh paragraph. Choice (B) is also suspect for similar reasons. Choice (C) echoes "A grammar such as Lowth's which lays down artificial rules.....may have relatively little to do with what people really say....." as given in para 8. Choice (D) is true - "Purism.....does not necessarily make language purer" but in a secondary context.

Choice (C)

83. Choice (C) is what the author opposes in language. Choice (B) is unwarranted in such a straightforward passage. Choice (A) is correct for the simple tone of the passage with several literary illusions. Choice (D) is an exaggeration.

Choice (A)

84. Choice A is too conclusive to be a summary for the third para, especially in using the word 'development'. The summary of para 3 can be "Language, like anything else, joins in the general flux in Nature's law to change. Choice B is not true. It is clearly mentioned in the second and third sentences of para 5 that the two powerful factors were....admiration for Latin and class snobbery. Choice C can be inferred from the fourth sentence of the first paragraph (The onset corresponds to any initial consonants in a syllable, the rime to the vowel and the following consonants). Choice D cannot be inferred to be true. There is no discussion of mythemes in the passage.

Choice (C)

85. Statement (a) is given as "Time changes all things.... no reason why language should escape...." as given in the last sentence of para 3. Statement (b) is given in the fourth paragraph. "Large numbers of intelligent people condemn and resent language change.....The above views are neatly summarized in Nash's poem. Statement (c) is given in the fifth, sixth and seventh sentences of para 5 - "when he attempted to codify the English language in his famous dictionary.....". Statement (d) is not true as the frog has his own subconscious rules for grammar. Choice (D)

86. With respect to statement (a), refer to the first few lines of the passage - Saussure's work was 'influential'. This is not the same as 'giving rise to, or giving life/sustenance to'. So statement (a) is not true. Statement (b) provides the correct meaning of the word 'bespattered'. Statement (c) is true as "plus sage que moi" translates to "wiser than me" as explained in para 6. Statement (d) is true as Eliza wants to talk like a lady, not talk grammar. Refer to the last sentence of the eighth paragraph.
Choice (A)

Solutions for questions 87 to 89:

Following information is given:

- (i) None had less than ₹20 (\rightarrow each person had $\geq ₹20$)
- (ii) Four odd numbers, one even number
- (iii) No two persons had the same amount.

87. To obtain the maximum difference between the highest and the lowest possible amounts, we should assume the least amount to be 20, which is the minimum. Then, the amounts will be 20, 21, 23, 25 and 57.

$$\text{Hence, the desired difference} = 57 - 20 = 37. \quad \text{Choice (C)}$$

88. To obtain the least possible difference between the five amounts, they should be as close to 30.
Two possible combinations of the amounts possessed by them are (25, 27, 29, 31, 32), (26, 27, 29, 31, 33).
Choice (B)

89. From the given condition, the possible amounts are (21, 26, 27, 33 and 39) OR (20, 21, 27, 33 and 45).
From these two cases, it can be observed that, in any case, the difference between the amounts possessed by any two persons cannot be 11.
Choice (C)

Solutions for questions 90 to 95:

Number of words and Explanatory notes for RC:

Number of words : 286

90. (A) is not stated. (B) is not true, as Derrida argued against first impressions as a route to "truth". (C) is true. Refer to the second sentence of para 1.
"Determination to capture reality doomed". (D) contrasts the passage.
Thus (C) is correct.
Choice (C)

91. Refer to the fourth sentence of the first para, the sentence given in parenthesis. Aristotle favored speech over writing, along with other thinkers, and Derrida disagrees, so (D) is right. (A) does not address the question. (B) contrasts the passage. (C) is not true at all.
Thus (D) is correct.
Choice (D)

92. Refer to the last sentence of the first para. 'a' is 'a' only because it is not 'b' implies that (B) is correct. (A) is over simplifying. (C) and (D) are not true, as no mutuality exists.
Thus (B) is correct.
Choice (B)

93. Refer to the first sentence of the second para subjugated or banished half of a crucial pair The passage states that Derrida "haunted texts" and exposed how the "subjugated" half of a binary opposition "plagued" the privileged half, as given in (A). (B) is out of context. So is (C). (D) is vague. Thus (A) is correct. The discussion is about the meaning drawn from areas of focus. The dichotomy is not between the intended meaning and the subverted meaning. Rather the dichotomy is the tension between the privileged (area of focus) and the marginalized (area not focused on) which, as discussed in the passage, is actually conspicuous by its absence, since it is the absence of the second that makes possible the focus on the first.
Choice (A)

94. Refer to the second half of the first sentence of the second para – Exposing the ways in which the subjugated or banished half of a crucial pair – inside/outside, man/woman, reason/madness, signifier/signified "man/woman" is a binary set of opposites with "woman" being the "subjugated half of a crucial pair (B) is technical. (A) is not precise. (D) is not substantiated.
Thus (C) is correct
Choice (C)

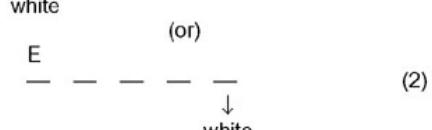
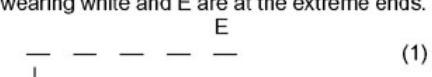
95. (A) is not Taylor's point. (B) is true, but incomplete. So is (D). (C) is right. "Acts of exclusion (in every structure) ..unsettle every construction." Refer to the last two sentences of the passage.
Thus (C) is correct
Choice (C)

Solution for question 96:

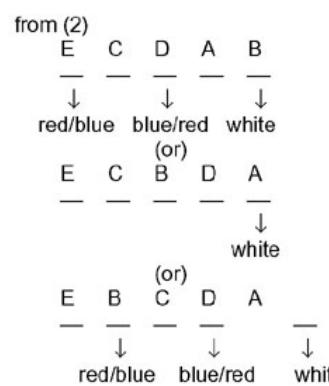
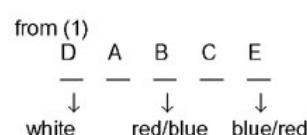
96. As far as the author's concerned, we have in this paragraph, primarily, a narration. The only idea that can be attributed to the author is - 'Therefore, the Confucian idea of group can be called ethical and normative.' A major feature of Confucianism discussed in the paragraph is a strong ethical sense of the group, where individuals contributed to the group interests for the betterment of society. Choice C comes close as an inference from the above paragraph. Disgruntled individuals don't cause instability by themselves – only when they're able to form disgruntled groups, which in fact, corresponds to the following thought of the Confucianists - 'These notions of group and ethics tended to relate the characters of individuals from different social levels and were of great perduring force.' This is also in keeping with the narration that 'people with lofty ideas.....sacrificed their lives for the group interest'. As such, choice C just presents the possibility of a different kind of group interest that must also be addressed. Choice A is nowhere implied. Choice B cannot be inferred. Choice D cannot be ascertained.
Choice (C)

Solutions for questions 97 to 100:

The person wearing white and E are at the extreme ends.



Given C is adjacent to the persons wearing red and blue and is not adjacent to A, who is to the immediate right of D.



But given B is to the right of the person wearing yellow and towards the left of the person wearing green. Also B is not adjacent to D.

⇒ B cannot be at the extreme ends.

from (1)					
D	A	B	C	E	(3)
white	yellow	r/b	green	b/r	
from (2)					
E	B	C	D	A	(4)
yellow	r/b	green	b/r	white	

97. In both the arrangements, C is wearing the green dress.
Choice (B)

98. If E wears the yellow dress, A wears the white dress.
Choice (C)

99. In the arrangement (3), B or E can wear the red dress and in the arrangement (4), D wears the red dress.
⇒ A cannot wear the red dress. Choice (A)

100. Statement I is satisfied in both arrangements (3) and (4). Hence, statement I alone is not independently sufficient. Statement II is satisfied only in the arrangement (4), when D wears the red dress. Hence, statement II alone is independently sufficient. Statement III is satisfied only in the arrangement (4), when B wears the blue dress. Hence, statement III alone is independently sufficient. Choice (C)

Difficulty level wise summary - Section II	
Level of Difficulty	Questions
Very Easy	-
Easy	71, 97, 98, 99
Medium	51, 53, 55, 57, 63, 64, 65, 70, 75, 76, 77, 78, 79, 80, 83, 84, 85, 86, 87, 88, 92, 95, 100
Difficult	52, 56, 58, 59, 60, 61, 62, 66, 72, 73, 74, 81, 82, 89, 96
Very Difficult	54, 67, 68, 69, 90, 91, 93, 94