

## SECTION I

**Questions 1 to 5 :** Each of the following questions has one or more blank spaces indicating where a word / words has been left out. Following each sentence, four words or sets of words lettered a to d have been given. You have to select the appropriate word or set of words to make the sentence most meaningful.

1. The \_\_\_\_\_, those cellular bodies which contain the \_\_\_\_\_ particles, the genes, provide us with basic facts of genetic transmission.

- (a) protoplasm, microscopic
- (b) globules, fat
- (c) cytoplasm, minute
- (d) chromosomes, hereditary

2. The insurance claim was \_\_\_\_\_ by the relevant documents

- (a) sustained
- (b) backed out
- (c) backed up
- (d) proved

3. I should not have \_\_\_\_\_ to talk in such a \_\_\_\_\_ strain especially when I had not studied the man to whom I was talking.

- (a) daring, commanding
- (b) try, bold
- (c) ventured, peremptory
- (d) emboldened, reckless

4. High prices are often the \_\_\_\_\_ of \_\_\_\_\_ of goods

- (a) accompaniment, dearth
- (b) concomitant, scarcity
- (c) \_\_\_\_\_ cause, \_\_\_\_\_ destitution
- (d) result, glut

5. The recent disturbances in the country will \_\_\_\_\_ and peace will be restored.

- (a) blow past
- (b) blow over
- (c) pass through
- (d) come to pass

**Questions 6 to 10 :** Choose from among the given alternatives the one which will be a suitable substitute for the underlined expression in each of the following.

6. The marriage of the princess with the commoner caused a furore among the royalty.

- (a) mesalliance
- (b) misalliance
- (c) elopement
- (d) romance

7. The victim's involuntary responses to stimulus proved that he was still living.

- (a) reactions
- (b) reflexes
- (c) feedback
- (d) communication

8. The art and science of good eating and drinking is now a lost art.

- (a) Gastronomy
- (b) Osteopathy
- (c) Gluttony
- (d) Cooking

9. The thrilling narrative caused the hair on the skin to stand erect.

- (a) tension
- (b) horrification
- (c) terror
- (d) horror

10. The body of Macedonian infantry drawn up in close order was like a formidable castle of steel.

- (a) phalanx
- (b) phagocyte
- (c) phenomenon
- (d) phaeton

**Questions 11 to 20: Choose the grammatically correct sentence from among the four options given for each question.**

11.

- (a) The Excel Company has greatly enhanced it's advertising expense.
- (b) The Excel Company has greatly increased its advertising expense.
- (c) The Excel Company has greatly enhanced its advertising expense.
- (d) The Excel Company has greatly increased it's advertising expense.

12.

- (a) Today we love, what tomorrow we hate; today we seek, what tomorrow we shun, today we desire, what tomorrow we fear.
- (b) Today, we love what tomorrow we hate, today, we seek what tomorrow we shun, today, we desire what tomorrow we fear.
- (c) Today we love what tomorrow we hate, today we seek what tomorrow we shun, today we desire what tomorrow we fear.
- (d) Today we love what tomorrow we hate; today we seek what tomorrow we shun; today we desire what tomorrow we fear.

13.

- (a) There's Mr. Som, whom they say is the best singer in the country.
- (b) There's Mr. Som, who they say is the best singer in the country.
- (c) There is Mr. Som, whom they say is the best singer in the country.
- (d) There is Mr. Som who, they say is the best singer in the country.

14.

- (a) I am not one of those who believe everything they hear.
- (b) I am not one of those who believes everything I hear.
- (c) I am not one of those who believes everything he hears.
- (d) I am not one of those who believes in everything one hears.

15.

- (a) The Board of Directors will hold its next meeting in July.
- (b) The Board of Directors will hold it's next meeting in July.
- (c) The Board of Directors shall hold the next meeting in July.
- (d) The Board of Directors shall hold it's next meeting in July.

16.

- (a) The state of his affairs were such as to cause anxiety to his creditors.
- (b) The state of his affairs was such as to cause anxiety to his creditors.
- (c) The state of his affairs are such as to cause anxiety to his creditors.
- (d) The state of his affairs are such as to cause anxiety to his creditors.

17.

- (a) Cannot one do what one likes with one's own?

- (b) Cannot one do that one likes to do with his own?  
(c) Cannot one do that one likes with his own?  
(d) Cannot one do what he likes with his own?

18.

- (a) Each of the students has done well.  
(b) Each of the student has done well.  
(c) Each of the students have done well.  
(d) Each of the student have done well.

19.

- (a) None of us were comfortable with what was happening.  
(b) None of us was comfortable with what was happening.  
(c) None among us were comfortable with what was happening.  
(d) None amongst us were comfortable with what was happening.

20.

- (a) Neither the king nor his ministers desires war.  
(b) Neither king nor his ministers desires war.  
(c) Neither the king nor his ministers desire war.  
(d) Neither king nor his ministers desire war.

**Questions 21 to 30: In each of the questions below, there are four statements which express the same idea. Choose the alternative that is most concise and clear.**

21.

- (a) The history of Modern Industry's performance, which is marginal at best, may be an indication of solvency problems that will occur in the future.  
(b) Modern industry's history of marginal performance may indicate solvency problems in the future.  
(c) The history of marginal performance of Modern Industry may indicate future solvency problems.  
(d) Modern Industry's history of performance, which is marginal at best, may indicate future solvency problems.

22.

- (a) On the whole food front one may say that we can enjoy festivals in the consciousness that though some things are dear, the basic foods are better in quality and still low in price.  
(b) We can enjoy festivals knowing that though some things are clear, the basic foods are of better quality and still low in price.  
(c) Although we know that some things are dear, we can still enjoy festivals because the basic foods are better in quality and low in price.  
(d) On the whole food front, although some things are dear, we can still enjoy festivals as the basic foods are of better quality and quite cheap.

23.

- (a) The dull are likely to have a limited conceptual grasp.  
(b) It is unlikely that the dull would have adequate conceptual grasp.  
(c) The dull are not likely to grasp concepts easily.  
(d) It is unlikely that the dull can grasp concepts easily.

24.

- (a) I request you to kindly deliver to me a tin of milk powder.  
(b) Could you please send me a tin of milk powder?  
(c) May I request you to please send me a tin of milk powder?  
(d) Can I have milk powder sent to me please?

25.

- (a) There is no question of it not being possible to freeze you to death and wake you up as and when you want.
- (b) There is no question of it not being possible to freeze you to death and wake you up whenever you want.
- (c) Undoubtedly, it should be possible to freeze you to death and wake you up whenever you want.
- (d) Undoubtedly, it should be possible to freeze you to death and wake you up when you want.

26.

- (a) Finally, there will be unexpected, unanticipated implicational consequences of this development concerning human life.
- (b) This development concerning human life will finally have unanticipated consequences.
- (c) This development concerning human life will finally have unexpected and unanticipated implications.
- (d) This development concerning human life will finally have unexpected implications.

27.

- (a) His definition of reality has first to be made coincident with the point of view adopted by the author whom he is discussing.
- (b) His definition of reality has first to be made coincident with the point of view adopted by the author who he is discussing.
- (c) His definition has to first agree with the point of view adopted by the author he is discussing.
- (d) His definition of reality has first to coincide with the point of view adopted by the author he is discussing.

28.

- (a) I should be very much obliged if you could be kind enough to send me the required material.
- (b) I should be much obliged if you could send me the required material.
- (c) I should be very much obliged if you could kindly send me the required material.
- (d) I should be grateful and very much obliged if you could kindly send me the required material.

29.

- (a) I am sorry, a prior engagement prevents me from joining you at dinner on Monday.
- (b) I regret to say that I am very sorry that a previous engagement will prevent me from joining you at dinner on Monday.
- (c) I regret to inform you that because of a previous engagement I will be prevented from joining you at dinner on Monday.
- (d) I am sorry to say that I am unable to join you at dinner on Monday because of a prior engagement.

30.

- (a) Looking back, our inability to confirm speakers gave us the maximum headaches.
- (b) Looking at it with hindsight our inability to confirm speakers gave us the maximum headaches.
- (c) On hindsight we find that our inability to confirm speakers gave us the maximum headaches.
- (d) On hindsight, our inability to confirm speakers gave us the maximum headaches.

**Questions 31 to 35: Each of the following questions has a pair of CAPITALIZED words followed by four pairs of words. Choose the pair of words which best expresses the relationship similar to that expressed in the capitalized pair.**

31. CAR : ROAD

- (a) electricity : cable
- (b) ink : pencil
- (c) bomb : missile
- (d) fly : bird

32. FORESIGHT : FARSIGHTEDNESS

- (a) long : lengthy
- (b) further : farther
- (c) short : dwarf
- (d) thinker : visionary

33. FLEET : NAVY

- (a) chapter : book
- (b) seats : auditorium
- (c) letter : word
- (d) drop : ocean

34. FEATHER : WING

- (a) down : goose
- (b) cotton : mattress
- (c) subheading : heading
- (d) brick : wall

35. SUGAR : TEA

- (a) paper : editor
- (b) weapon : murderer
- (c) button : buttonhole
- (d) umbrella : rain

*Questions 36 to 40: Each pair of CAPITALIZED words given below is followed by four pairs of words. Choose the pair which does not exhibit the relationship similar to that expressed in the capitalized pair.*

36. RENT : LEASE

- (a) interest : borrow
- (b) salary : employ
- (c) price : buy
- (d) tax : govern

37. TEMPERATURE : HEAT

- (a) votes : popularity
- (b) IQ : intelligence
- (c) ohms : resistance
- (d) speed : distance

38. PROGRESS : PROGRESSIVE

- (a) terror : terrorist
- (b) sympathy : sympathizer
- (c) revolution : revolutionary
- (d) reform : reformist

39. STUBBORN : ADAPTABLE

- (a) stupid : bright
- (b) moral : amoral
- (c) inherent : extraneous
- (d) friend : enemy

40. CLIPS : PAPER

- (a) thread : beads
- (b) cement : bricks
- (c) ribbon : hair
- (d) bag : vegetables

*Questions 41 to 50: Each of these questions contains six statements followed by four sets of combinations of three. Choose the set in which the statements are most logically related.*

41.

- A. Some of my closest friends disapprove of me.
- B. Some of my closest friends are aardvarks.
- C. All of my closest friends disapprove of me.
- D. All who disapprove of me are aardvarks.
- E. Some who disapprove of me are aardvarks.
- F. Some of my closest friends are no aardvarks.

- (a) BCD
- (b) ABD
- (c) BCE
- (d) ABE

42.

- A. All those who achieve great ends are happy.
- B. All young people are happy.
- C. All young people achieve great ends.
- D. No young people achieve great ends.
- E. No young people are happy.
- F. Some young people are happy.

- (a) ADE
- (b) ABF
- (c) ACB
- (d) ADF

43.

- A. All candid men are persons who acknowledge merit in a rival.
- B. Some learned men are very candid.
- C. Some learned men are not persons who acknowledge merit in a rival.
- D. Some learned men are persons who are very candid.
- E. Some learned men are not candid.
- F. Some persons who recognize merit in a rival are learned.

- (a) ABE
- (b) ACF
- (c) ADE
- (d) BAF

44.

- A. All roses are fragrant.
- B. All roses are majestic.
- C. All roses are plants.
- D. All roses need air.
- E. All plants need air.
- F. All plants need water.

- (a) CED
- (b) ACB
- (c) BDC
- (d) CFE

- 45.
- A. All men are men of scientific ability.
  - B. Some women are women of scientific ability.
  - C. Some men are men of artistic genius.
  - D. Some men and women are of scientific ability.
  - E. All men of artistic genius are men of scientific ability.
  - F. Some women of artistic genius are women of scientific ability.
- (a) ACD
  - (b) ACE
  - (c) DEF
  - (d) ABC

- 46.
- A. No fishes breathe through lungs.
  - B. All fishes have scales.
  - C. Some fishes breed up stream.
  - D. All whales breathe through lungs.
  - E. No whales are fishes.
  - F. All whales are mammals.
- (a) ABC
  - (b) BCD
  - (c) ADE
  - (d) DEF

- 47.
- A. Some mammals are carnivores.
  - B. All whales are mammals.
  - C. All whales are aquatic animals.
  - D. All whales are carnivores.
  - E. Some aquatic animals are mammals.
  - F. Some mammals are whales.
- (a) ADF
  - (b) ABC
  - (c) AEF
  - (d) BCE

- 48.
- A. First-year students of this college like to enter for the prize.
  - B. All students of this college rank as University students.
  - C. First-year students of this college are entitled to enter for the prize.
  - D. Some who rank as University students are First-year students.
  - E. All University students are eligible to enter for the prize.
  - F. All those who like to are entitled to enter for the prize.
- (a) AEF
  - (b) ABC
  - (c) BEC
  - (d) CDF

49.

- A. Some beliefs are uncertain.
- B. Nothing uncertain is worth dying for.
- C. Some belief is worth dying for.
- D. All beliefs are uncertain.
- E. Some beliefs are certain.
- F. No belief is worth dying for.

- (a) ABF
- (b) BCD
- (c) BEF
- (d) BDF

50.

- A. No lunatics are fit to serve on a jury.
- B. Everyone who is sane can do logic.
- C. None of your sons can do logic.
- D. Some who can do logic are fit to serve on a jury.
- E. All who can do logic are fit to serve on a jury.
- F. Everyone who is sane is fit to serve on a jury.

- (a) BDE
- (b) BEF
- (c) BDF
- (d) ADE



## SECTION II

**Questions. 51 to 58 : Each of the following questions is followed by two statements. MARK,**

- (a), if the question can be answered with the help of statement I alone,  
(b), if the question can be answered with the help of statement II alone,  
(c), if both, statement I and statement II are needed to answer the question, and  
(d), if the statement cannot be answered even with the help of both the statements.

51. If R is a integer between 1 & 9,  $P - R = 2370$ , what is the value of R?

- I. P is divisible by 4.  
II. P is divisible by 9.

52. A man distributed 43 chocolates to his children. How many of his children are more than five years old?

- I. A child older than five years gets 5 chocolates.  
II. A child 5 years or younger in age gets 6 chocolates.

53. Ramu went by car from Calcutta to Trivandrum via Madras, without any stoppages. The average speeds for the entire journey was 40 kmph. What was the average speed from Madras to Trivandrum?

- I. The distance from Madras to Trivandrum is 0.30 times the distance from Calcutta to Madras.  
II. The average speed from Madras to Trivandrum was twice that of the average speed from Calcutta to Madras.

54.  $x$ ,  $y$ , and  $z$  are three positive odd integers, Is  $x + z$  divisible by 4?

- I.  $y - x = 2$   
II.  $z - y = 2$

55. The unit price of product P1 is non-increasing and that of product P2 is decreasing. Which product will be costlier 5 years hence?

- I. Current unit price of P1 is twice that of P2.  
II. 5 years ago, unit price of P2 was twice that of P1.

56. X is older than Y, Z is younger than W and V is older as Y. Is Z younger than X?

- I. W may not be older than V  
II. W is not older than V

57. How long did Mr. X take to cover 5000 km. journey with 10 stopovers?

- I. The  $i^{\text{th}}$  stopover lasted  $i^2$  minutes.  
II. The average speed between any two stopovers was 66 kmph.

58. Is  $\left[ \frac{(x^{-1} - y^{-1})}{(x^{-2} - y^{-2})} \right] > 1$ ?

- I.  $x + y > 0$ .  
II.  $x$  and  $y$  are positive integers and each is greater than 2.

**Questions 59 - 100 : Choose the best answer choice from those provided**

**Q59-60 :** In a game played by two people there were initially N match sticks kept on the table. A move in the game consists of a player removing either one or two matchsticks from the table. The one who takes the last matchstick loses. Players make moves alternately. The player who will make the first move is A. The other player is B.

59. The smallest value of N (greater than 5) that ensures a win for B is

- (a) 7  
(b) 6  
(c) 10  
(d) 8

60. The largest of N (less than 50) that ensures a win for B is

- (a). 46  
(b) 47

- (c) 48  
(d) 49

61. There were  $x$  pigeons and  $y$  mynahs in a cage. One fine morning  $p$  of them escaped to freedom. If the bird keeper, knowing only that  $p = 7$ , was able to figure out without looking into the cage that at least one pigeon had escaped, then which of the following does not represent a possible  $(x,y)$  pair?

- (a) (10,8)  
(b) (7,2)  
(c) (25,6)  
(d) (12,4)

62. The remainder when  $2^{60}$  is divided by 5 equals

- (a) 0  
(b) 1  
(c) 2  
(d) None of these

63. Mr.X enters a positive integer  $Y$  in an electronic calculator and then goes on pressing the square – root key repeatedly. Then

- (a) The display does not stabilize  
(b) The display becomes closer to 0  
(c) The display becomes closer to 1  
(d) May not be true and the answer depends on the choice of  $Y$

64. What is the sum of the following series:  $1/(1 \times 2) + 1/(2 \times 3) + 1/(3 \times 4) + \dots + 1/(100 \times 101)$

- (a) 99/100  
(b) 1/100  
(c) 100/101  
(d) 101/102

65. The value of  $1/(1-x) + 1/(1+x) + 2/(1+x^2) + 4/(1-x^6)$

- (a)  $8/(1-x^8)$   
(b)  $4x/(1+x^2)$   
(c)  $4/(1-x^6)$   
(d)  $4/(1+x^4)$

66. Let  $a, b$  be any positive integers and  $x = 0$  or  $1$ , then

- (a)  $a^x b^{(1-x)} = xa + (1-x)b$   
(b)  $a^x b^{(1-x)} = (1-x)a + xb$   
(c)  $a^x b^{(1-x)} = a^{(1-x)} b^x$   
(d) None of the above is necessarily true.

67. There are six boxes numbered 1, 2, 3, 4, 5, 6. Each box is to be filled up either with a white ball or a black ball in such a manner that at least one box contains a black ball and all the boxes containing black balls are consecutively numbered. The total number of ways in which this can be done equals.

- (a) 15  
(b) 21  
(c) 63  
(d) 64

68. Consider the following steps :

1. Put  $x = 1, y = 2$
2. Replace  $x$  by  $xy$
3. Replace  $y$  by  $y + 1$
4. If  $y = 5$  then go to step 6 otherwise go to step 5.
5. Go to step 2
6. Stop

Then the final value of  $x$  equals

- (a) 1
- (b) 24
- (c) 120
- (d) 720

69. In a stockpile of products produced by three machines M1, M2 and M3, 40% and 30% were manufactured by M1 and M2 respectively. 3% of the products of M1 are defective, 1% of products of M2 defective, while 95% of the products of M3 are not defective. What is the percentage of defective in the stockpile?

- (a) 3%
- (b) 5%
- (c) 2.5%
- (d) 4%

70. From any two numbers  $x$  and  $y$ , we define  $x * y = x + 0.5y - xy$ . Suppose that both  $x$  and  $y$  are greater than 0.5. Then  $x * x < y * y$  if

- (a)  $1 > x > y$
- (b)  $x > 1 > y$
- (c)  $1 > y > x$
- (d)  $y > 1 > x$

71. Consider a function  $f(k)$  defined for positive integers  $k = 1, 2, \dots$ ; the function satisfies the condition  $f(1) + f(2) + \dots = p/(p-1)$ . Where  $p$  is fraction i.e.  $0 < p < 1$ .

Then  $f(k)$  is given by

- (a)  $p(-p)^{k-1}$
- (b)  $p(1-p)^{k-1}$
- (c)  $\{p(1-p)\}^{k-1}$
- (d) None of these

72. 116 people participated in a singles tennis tournament of knock out format. The players are paired up in the first round, the winners of the first round are paired up in second round, and so on till the final is played between two players. If after any round, there is odd number of players, one player is given a bye, i.e. he skips that round and plays the next round with the winners. Find the total number of matches played in the tournament.

- (a) 115
- (b) 53
- (c) 232
- (d) 116

73. If  $n$  is any positive integer, then  $n^3 - n$  is divisible

- (a) Always by 12
- (b) Never by 12
- (c) Always by 6
- (d) Never by 6

74. The value of  $(1-d^3)/(1-d)$  is

- (a)  $> 1$  if  $d > -1$
- (b)  $> 3$  if  $d > 1$
- (c)  $> 2$  if  $0 < d < 0.5$
- (d)  $< 2$  if  $d < -2$

75. Gopal went to a fruit market with certain amount of money. With this money he can buy either 50 oranges or 40 mangoes. He retains 10% of the money for taxi fare. If he buys 20 mangoes, then the number of oranges he can buy is

- (a) 25
- (b) 18

- (c) 20  
(d) None of these

**Questions 76-78 :** A dealer deals only in colour TVs and VCRs. He wants to spend up to Rs.12 lakhs to buy 100 pieces. He can purchase a colour TV at Rs.10,000 and a VCR at Rs.15,000. He can sell a colour TV at Rs.12,000 and a VCR at Rs.17,500. His objective is to maximize profits. Assume that he can sell all the items that he stocks.

76. For the maximum profit, the number of colour TVs and VCRs that he should respectively stock are

- (a) 80, 20  
(b) 20, 80  
(c) 60, 40  
(d) None of these

77. If the dealer would have managed to get an additional space to stock 20 more items, then for maximizing profit, the ratio of number of VCRs and number of TVs that he should stock is

- (a) 7 : 3  
(b) 0  
(c) 1 : 2  
(d) None of these

78. The maximum profit, in rupees lakh, the dealer can earn from his original stock if he can sell a colour TV at Rs. 12200 and VCR at Rs.18300 is

- (a) 2.64  
(b) 2.49  
(c) 2.72  
(d) 2.87

**Questions 79-81 :** Ghosh Babu has a certain amount of property consisting of cash, gold coins and silver bars. The cost of a gold coin is Rs. 4000 and the cost of a silver bar is Rs. 1000. Ghosh Babu distributed his property among his daughters equally. He gave to his eldest daughter gold coins worth 20% of the total property and Rs. 25000 in cash. The second daughter was given silver bars worth 20% of the remaining property and Rs. 50000 cash. He then gave each of the third and fourth daughters equal number of gold coins and silver bars both together accounting each for 20% of the property remaining after the previous distribution and Rs. 25000 more than what the second daughter had received in cash.

79. The amount of property in gold and silver possessed by Ghosh Babu is

- (a) 2,25,000  
(b) 2,75,000  
(c) Rs. 4,25,000  
(d) None of these

80. Total property of Ghosh Babu (in Rs.lakh) is

- (a) 5.0  
(b) 7.5  
(c) 10.0  
(d) 12.5.

81. If Ghosh Babu had equal number of gold and silver bars, the number of silver bars he has is

- (a) 90  
(b) 60  
(c) 75  
(d) 55

**Questions 82-84 :** The following questions relate to a game to be played by you and your friend. The game consists of a 4 x 4 board (see below) where each cell contains a positive integer. You and your friend make moves alternately. A move by any of the players consists of splitting the current board configuration into two equal halves and retaining one of them. In your moves you are allowed to split the board only vertically and to decide to retain either the left or the right half. Your friend, in his/her moves, can split the board only horizontally and can retain either the lower or the upper half. After two moves by each player a single cell will remain which can no longer be split and the number in that cell will be treated as the gain (in rupees) of the person who has started the game. A sample game is shown below.



5	1	6	7
9	1	3	2
6	1	8	4

Initial Board

5	1		
9	1		
6	1		

After your move  
(Retain left)

5	1		

After your friends move  
(Retain upper)

	1		

After your move  
(Retain right)

	1		

After your friends move  
(Retain lower)

So your gain is Re.1. With the same initial board configuration as above and assuming that you have to make the first move, answer the following questions.

82. If you choose (retain right) (retain left) in your turns, the best move sequence for your friend to reduce your gain to a minimum will be

- (a) (retain upper)(retain lower)
- (b) (retain lower) (retain upper)
- (c) (retain upper) (retain upper)
- (d) (retain lower) (retain lower)

83. If both of you select your moves intelligently then at the end of the game your gain will be

- (a) Rs.4
- (b) Rs.3
- (c) Rs.2
- (d) None of these

84. If your first move is (retain right), then whatever moves your friend may select you can always force a gain of no less than

- (a) Rs.3
- (b) Rs.6
- (c) Rs.4
- (d) None of these

85. The roots of the equation  $ax^2 + 3x + 6 = 0$  will be reciprocal to each other if the value of  $a$  is

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

86. A car after traveling 18 km from a point A developed some problem in the engine and speed became  $\frac{4}{5}$  of its original speed As a result, the car reached point B 45 minutes late. If the engine had developed the same problem after traveling 30 km from A, then it would have reached B only 36 minutes late. The original speed of the car (in km per hour) and the distance between the points A and B (in km.) is

- (a) 25, 130
- (b) 30,150
- (c) 20, 90
- (d) None of these

87. A, B and C individually can finish a work in 6, 8 and 15 hours respectively. They started the work together and after completing the work got Rs.94.60 in all. When they divide the money among themselves, A, B and C will respectively get (in Rs.)

- (a) 44, 33, 17.60
- (b) 43, 27, 20, 24.40
- (c) 45, 30, 19.60
- (d) 42, 28, 24.60

88. Two trains are traveling in opposite direction at uniform speed 60 and 50 km per hour respectively. They take 5 seconds to cross each other. If the two trains had traveled in the same direction, then a passenger sitting in the faster moving train would have overtaken the other train in 18 seconds. What are the lengths of trains (in metres)?

- (a) 112.78
- (b) 97.78, 55
- (c) 102.78, 50
- (d) 102.78, 55

89. N the set of natural numbers is partitioned into subsets  $S_1 = (1)$ ,  $S_2 = (2,3)$ ,  $S_3 = \{4,5,6\}$ ,  $S_4 = \{7,8,9,10\}$  and so on. The sum of the elements of the subset  $S_{50}$  is

- (a) 61250
- (b) 65525
- (c) 42455
- (d) 62525

90. A square is drawn by joining the midpoints of the sides of a given square. A third square is drawn inside the second square in the same way and this process is continued indefinitely. If a side of the first square is 8 cm, the sum of the areas of all the squares such formed (in sq.cm.)is

- (a) 128
- (b) 120
- (c) 96
- (d).None of these

**Questions 91-94 :** The pages of a book are numbered 0, 1, 2 ... upto M,  $M > 0$ . There are four categories of instructions that direct a person in positioning the book at a page. The instruction types and their meanings are :

1. OPEN : Position the book at page No. 1
2. CLOSE : Position the book at page No. 0
3. FORWARD, n : From the current page move forward by n pages; if, in this process, page number M is reached, stop at M.
4. BACKWARD, n : From the current page, move backward by n pages; if in this process, page number 0 is reached, stop at page number 0.

In each of the following questions, you will find a sequence of instructions formed from the above categories. In each case, let  $n_1$  be the page number before the instructions are executed and  $n_2$  be the page number at which the book is positioned after the instructions are executed.

91. FORWARD, 25 ; BACKWARD, 10. which of the following statements is true?

- (a)  $n_1 = n_2$  if  $M = 10$  and  $n_1 = 0$
- (b)  $M = 20$  provided  $n_1 > 0$
- (c)  $n_1 > 30$  provided  $M = 900$
- (d)  $n_1 = 37$  provided  $M = 25$

92. BACKWARD, 5; FORWARD, 5. Which of the following statements is true about the above set of instructions?

- (a)  $n_1 = n_2$  provided  $n_1 \geq 5$
- (b)  $n_1 = n_2$  provided  $n_1 > 0$
- (c)  $n_2 = 5$  provided  $M > 0$
- (d)  $n_1 > n_2$  provided  $M > 0$

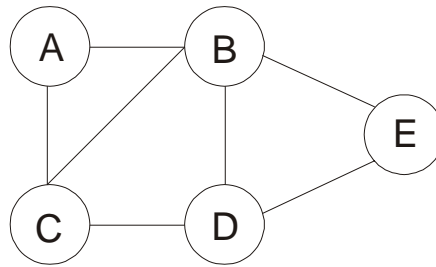
93. FORWARD, 10; FORWARD, 10. Which of the following statements about the above instructions is true?

- (a)  $n_2 - n_1 = 20$  only if  $n_1 = 0$
- (b)  $n_2 - n_1 = 20$  if  $M > 20$  and  $n_1 = 1$
- (c)  $n_2 - n_1 = 10$  if  $M = 21$  and  $n_1 = 0$
- (d)  $n_2 > n_1$  if  $M > 0$

94. FORWARD, 5; BACKWARD, 4. Which of the following statements about the above instructions is true?

- (a)  $n_2 = n_1 + 4$  Provided  $1 < n_1 < 7$
- (b)  $n_2 = n_1$  provided  $M < 6$
- (c)  $n_2 = n_1 + 1$  provided  $M - n_1 > 5$
- (d)  $n_2 - n_1 < 0$  provided  $M > 0$

**Questions :: 95 to 96 :** There are 5 cities, A, B, C, D and E connected by 7 roads as shown in the figure below:



Design a route such that you start from any city of your choice and walk on each of the 7 roads once and only once, not necessarily returning to the city from which you started.

95. For a route that satisfies the above restrictions, which of the following statements is true?

- (a) There is no route that satisfies the above restriction.
- (b) A route can either start at C or end at C, but not both.
- (c) D can be only an intermediate city in the route.
- (d) The route has to necessarily end at E.

96. How many different starting cities are possible such that the above restriction is satisfied?

- (a) one
- (b) zero
- (c) three
- (d) two

97. If  $xy + yz + zx = 0$ , then  $(x + y + z)^2$  equals

- (a)  $(x + y)^2 + xz$
- (b)  $(x + z)^2 + xy$
- (c)  $x^2 + y^2 + z^2$
- (d)  $2(xy + yz + xz)$

98. If equal numbers of people are born on each day, find the approximate percentage of the people whose birthday will fall on 29<sup>th</sup> February. (if we are to consider people born in 20<sup>th</sup> century and assuming no deaths).

- (a) 0.374
- (b) 0.5732
- (c) 0.0664
- (d) None of these

99. I brought 30 books on Mathematics, Physics, and Chemistry, priced at Rs.17, Rs.19, and Rs.23 per book respectively, for distribution among poor students of Standard X of a school. The physics books were more in number than the Mathematics books but less than the Chemistry books, the difference being more than one. The total cost amounted to Rs.620. How many books on Mathematics, Physics, and Chemistry could have been bought respectively?

- (a) 5, 8, 17
- (b) 5, 12, 13
- (c) 5, 10, 15
- (d) 5, 6, 19

100. The last time Rahul bought Diwali cards, he found that the four types of cards that he liked were priced Rs.2.00, Rs.3.50, Rs.4.50 and Rs.5.00 each. As Rahul wanted 30 cards, he took five each of two kinds and ten each of the other two, putting down the exact number of 10 rupees notes on the counter payment. How many notes did Rahul give?

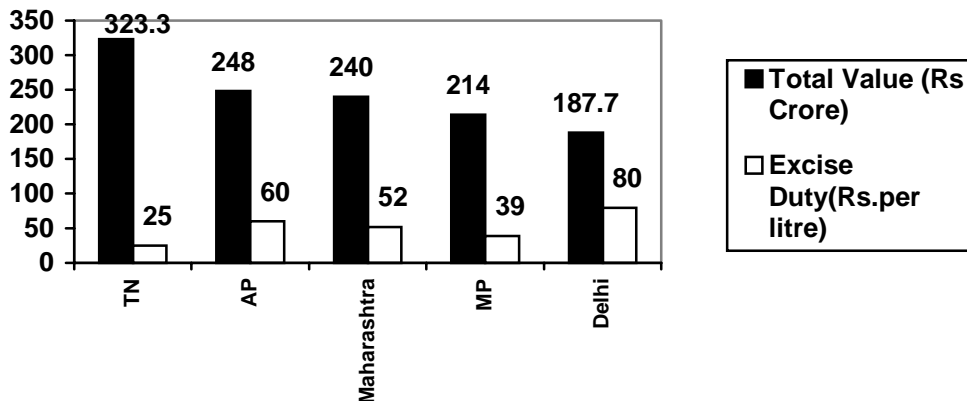
- (a) 8
- (b) 9
- (c) 10
- (d) 11



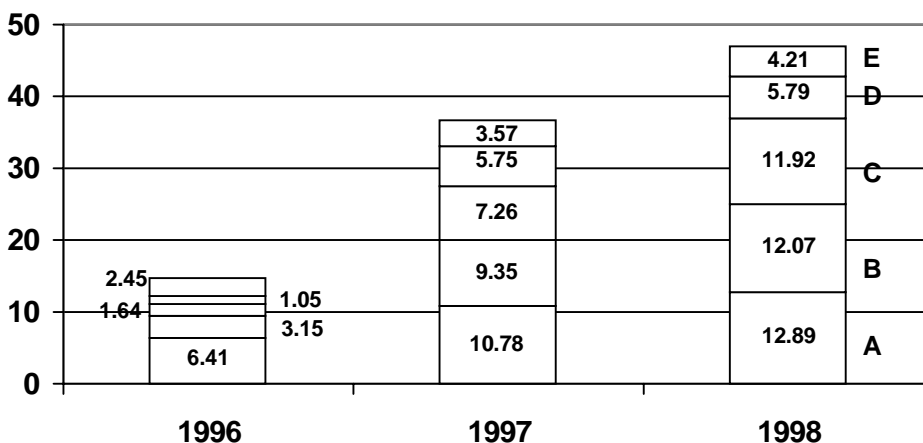
### SECTION III

Questions 101 – 125 : In these questions, you are provided data in the form of charts and/or tables. Study the data carefully and answer the questions following them

Q101-104 : The following graph shows the value of liquor supplied by the 5 states in 1996 and the excise duty rates in each state.



Amount of liquor supplied in Tamil Nadu Distilleries A, B, C, D, E (from bottom to top) in lakh litres.



101. What is the lowest percentage difference in the excise duty rates for any two states?

- (a) 12
- (b) 15
- (c) 20
- (d) Cannot be determined.

102. Which of the five states manufactured liquor at the lowest cost?

- (a) Tamil Nadu
- (b) Delhi
- (c) The states which has the lowest value for (wholesale price-Excise duty) per litre
- (d) Cannot be determined.

103. If Excise duty is levied before the goods leave the factory (on the value of the liquor), then which of the following choices shows distilleries in ascending order of the excise duty paid by them for the year 1996? (Assume the total liquor in TN is supplied by only these 5 distilleries).

- (a) ECABD
- (b) ADEBC

- (c) DCEBA  
(d) Cannot be determined.

104. If the Tamil Nadu distillery, with the least average simple annual growth in amount of liquor supplied in the given period had shown the same rate of growth as the one which grew fastest, what would that company's supply have been in 1998, in lakh liters?

- (a) 13  
(b) 15.11  
(c) 130  
(d) Cannot be determined.

105. Saira, Mumtaz and Zeenat have a ball, a pen and a pencil, and each girl has just one object in hand. Among the following statements, only one is true and the other two are false.

- I. Saira has a ball.  
II. Mumtaz does not have the ball.  
III. Zeenat does not have the pen.

Who has the ball?

- (a) Saira  
(b) Mumtaz  
(c) Zeenat  
(d) Cannot be determined

106. Albert, David, Jerome and Tommy were plucking mangoes in a grove to earn some pocket money during the summer holidays. Their earnings were directly related to the number of mangoes plucked and had the following relationship:

Jerome got less money than Tommy. Jerome and Tommy together got the same amount as Albert and David taken together. Albert and Tommy together got less than David and Jerome taken together.

Who earned the most pocket money? Who plucked the least number of mangoes?

- (a) David, Jerome  
(b) David, Albert  
(c) Jerome, Tommy  
(d) Jerome, Albert

107. I happened to be the judge in the all India Essay Competition on Nylon Dying, organized some time back by a dyestuff firm. Mill technicians were eligible to enter the competition. My work was simplified in assessing the essays, which had to be done under five heads-Language, Coherence, Subject Matter, Machinery and Recent Developments. Marks were to be given out of a maximum of 20 under each head. There were only five entries.

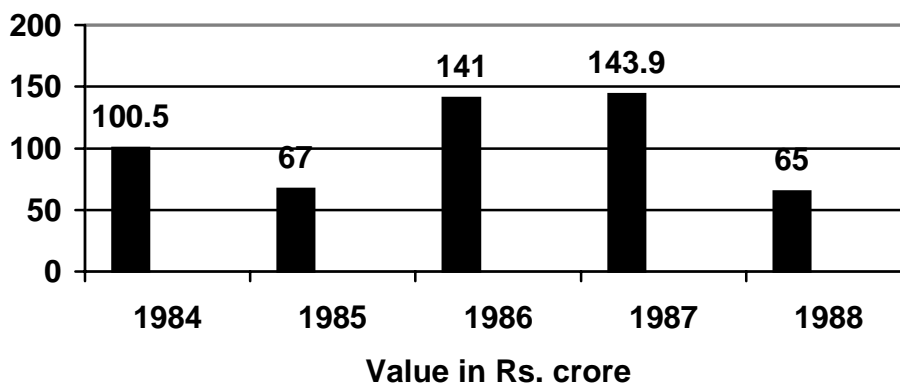
The winner got 90 marks. Akhila got 13 in Coherence and Divya 10 in Machinery. Bhanu's total was less than Akhila's. Charulata has sent an entry. Ela had got as many marks as Divya. None got 20 under any head.

Who was the winner?

- (a) Divya  
(b) Charulata  
(c) Ela  
(d) Bhanu

Questions 108 to 110 : Refer to the following Bar-chart and answer the questions that follow :

### Project Exports: Contracts Secured



108. What is the average value of the contract secured during the years shown in the diagram?

- (a).Rs. 103.48 crore
- (b).Rs. 105 crore
- (c) Rs. 100 crore
- (d).Rs.125.2 crore

109. Compared to the performance in 1985 (i.e. taking it as the base), what can you say about the performances in the years '84, '85, '86, '87, '88 respectively, in percentage terms?

- (a) 150, 100, 211, 216, 97
- (b) 100, 67, 141, 144, 65
- (c) 150, 100, 200, 215, 100
- (d) 120, 100, 220, 230, 68

110. Which is the year in which the highest percentage decline is seen in the value of contract secured compared to the preceding year?

- (a) 1985
- (b) 1988
- (c) 1984
- (d) 1986

Questions 111-116 : The table below shows the estimated cost (in Rs. Lakh) of a project of laying a railway line between two places.

	1988	1989	1990	1991
1. Surveying	41.5	7.5	2.2	0.5
2. Cement	-	95.0	80.0	75.0
3. Steel	-	70.0	45.0	60.0
4. Bricks	-	15.0	12.0	16.0
5. Other building material	-	25.0	18.0	21.0
6. Labour	2.1	25.0	20.0	18.0
7. Administration	7.5	15.0	15.0	14.0
8. Contingencies	1.0	15.0	4.2	5.0
Total	52.1	267.5	196.4	209.5

111. The total expenditure is required to be kept within Rs. 700 lakh by cutting the expenditure on administration equally in all the years. What will be the percentage cut for 1989?

- (a) 22.6
- (b) 32.6
- (c) 42.5
- (d) 52.6

112. If the length of line to be laid each year is in proportion to the estimated cost for material and labour, what fraction of the total length is proposed to be completed by the third year?

- (a) 0.9
- (b) 0.7
- (c) 0.6
- (d) 0.3

113. What is the approximate ratio of the total cost of materials for all the years bear to the total labour cost?

- (a) 4 : 1
- (b) 8 : 1
- (c) 12:1
- (d) 16 : 1

114. If the cost of materials rises by 5% each year from 1990 onwards, by how much will the estimated cost rise?

- (a) Rs. 11.4 lakh
- (b) Rs. 16.4 lakh
- (c) Rs.21.4 lakh
- (d) Rs.26.4 lakh

115. It is found at the end of 1990, that the entire amount estimated for the project has been spent. If for 1991, the actual amount spent is equal to that which was estimated, by what percent (approximately) has the actual expenditure exceeded the estimated expenditure?

- (a) 39
- (b) 29
- (c) 19
- (d) 9

116. After preparing the estimate, the provision for contingencies is felt inadequate and is therefore doubled. By what percent does the total estimate increase?

- (a) 3.47
- (b) 2.45
- (c) 1.50
- (d) 3.62

Questions 117-121 : The first table gives the number of saris (of all the eight colours) stocked in six regional showrooms. The second gives the number of saris (of all the eight colours) sold in these six regional showrooms. The third table gives the percentage of saris sold to saris stocked for each colour in each region. The fourth table gives the percentage of saris of a specific colour sold within that region. The fifth table gives the percentage of saris of a specific colour sold across all the regions.

Study the tables and for each of the following questions, choose the best alternative.

Table 1

Region	Blue	Green	Magenta	Brown	Orange	Red	Violet	Yellow	Total
1	267	585	244	318	132	173	195	83	1994
2	341	480	99	199	234	119	200	109	1781
3	279	496	107	126	100	82	172	106	1468
4	198	307	62	221	65	96	124	91	1164
5	194	338	120	113	82	60	125	124	1156
6	158	261	133	104	71	158	128	82	1095
<b>Total</b>	<b>1437</b>	<b>2454</b>	<b>765</b>	<b>1081</b>	<b>684</b>	<b>688</b>	<b>944</b>	<b>595</b>	<b>8658</b>

Table 2

Region	Blue	Green	Magenta	Brown	Orange	Red	Violet	Yellow	Total
1	122	164	71	165	40	84	97	45	788
2	124	200	37	78	67	47	73	50	676
3	21	57	7	24	9	14	20	11	163
4	79	85	22	164	18	46	43	54	511
5	29	36	22	17	9	18	19	16	166
6	1	3	2	2	1	3	2	4	18
<b>Total</b>	<b>376</b>	<b>545</b>	<b>161</b>	<b>450</b>	<b>144</b>	<b>212</b>	<b>254</b>	<b>180</b>	<b>2322</b>

Table 3

Region	Blue	Green	Magenta	Brown	Orange	Red	Violet	Yellow	All
1	46	28	29	52	30	49	50	54	40
2	36	42	37	39	29	39	37	46	38
3	8	11	7	19	9	17	12	10	11
4	40	28	35	74	28	48	35	59	44
5	15	11	18	15	11	30	15	13	14
6	1	1	2	2	1	2	2	5	2
<b>All</b>	<b>26</b>	<b>22</b>	<b>21</b>	<b>42</b>	<b>21</b>	<b>31</b>	<b>27</b>	<b>30</b>	

Table 4

Region	Blue	Green	Magenta	Brown	Orange	Red	Violet	Yellow	Total
1	15	21	9	22	4	11	12	6	100
2	18	30	5	12	10	7	11	7	100
3	13	35	4	15	6	9	12	7	100
4	15	17	4	32	4	9	8	11	100
5	17	22	13	10	5	11	11	10	100
6	6	14	11	11	6	17	11	22	100

Table 5

Region	Blue	Green	Magenta	Brown	Orange	Red	Violet	Yellow
1	32	30	44	37	28	40	38	25
2	33	37	23	17	47	22	29	28
3	6	10	4	5	6	7	8	6
4	21	16	14	36	13	22	17	30
5	8	7	14	4	6	8	7	9
6	0	1	1	0	1	1	1	2
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

117. Which region-colour combination accounts for the highest percentage of sales to stock?

- (a) (1, Brown)  
(b) (2, Yellow)

(c) (4, Brown)

(d) (5, Red)

118. Which colour is the most popular in region1?

(a) Blue

(b) Brown

(c) Green

(d) Violet

119. Which region sold the maximum percentage of magenta saris out of the total sales of magenta saris?

(a) 3

(b) 4

(c) 2

(d) 1

120. Out of its total sales, which region sold the minimum percentage of green saris?

(a) 1

(b) 6

(c) 4

(d) 2

121. In which region is the maximum percentage of blue saris sold?

(a) 2

(b) 3

(c) 1

(d) 4

**Questions 122 to 125 :** The table below gives the achievements of Agricultural Development Programmes from 1983 – 84 to 1988 – 89. Study the following table and for each of the following questions, choose the best alternative.

Programme	83 – 84	84 - 85	85 - 86	86 - 87	87 - 88	88 – 89
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**Irrigation (Cumulative in Million Hectares)**

Major & Medium	22.05	22.70	23.20	24.00	24.60	25.32
Minor	28.60	32.77	32.77	34.20	34.00	35.14

**High yielding varieties (Million Hectares)**

1. Paddy	16.90	18.20	19.70	18.70	21.70	22.80
2. Wheat	15.90	16.10	16.80	17.80	19.40	19.10
3. Jowar	3.10	3.50	3.90	4.40	5.30	5.10
4. Bajra	2.90	3.60	4.60	4.70	5.40	5.20
5. Maize	1.40	1.60	1.60	1.70	1.90	2.00

**Consumption of Chemical fertilizers (Million tons)**

1. Nitrogen	3.42	3.68	4.07	4.22	5.20	5.49
2. Phosphate	1.11	1.21	1.32	1.44	1.73	1.89
3. Potash	0.59	0.62	0.67	0.73	0.78	0.84

**Gross Cropped area (Million hectares)**

	174.8	173.1	177.00	172.6	180.4	187.8
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122. The consumption of chemical fertilizer per hectare of gross cropped area is lowest for the year

- 1984 – 85
- 1985 – 86
- 1986 – 87
- 1987 – 88

123. In which year does the area cropped under high yielding varieties show a decline for the maximum number of crops?

- 1988 – 89
- 1985 – 86
- 1986 – 87
- None of these

124. How much area, in million hectares, was brought under irrigation during the year 1986-87?

- 58.20
- 1.43
- 0.80
- 2.23

125. It is possible that a part of the minor irrigated area is brought under major and medium areas. In which year has this definitely happened?

- 1984 – 85
- 1985 – 86
- 1986 87
- 1987 – 88

## SECTION IV

### Passage I

The motive force that has carried the psychoanalytic movement to a voluminous wave of popular attention and created for it considerable following those discontent with traditional methods and attitudes, is the frank direction of the psychological instruments of exploration to the insistent and intimate problems of human relations. However false or however true its conclusions, however weak or strong its arguments, however effective or defective or even pernicious its practice, its mission is broadly humanistic. Psychological enlightenment is presented as a program of salvation. By no other appeal could the service of psychology have become so glorified. The therapeutic promise of psychoanalysis came as the most novel, most ambitious, most releasing of the long procession of curative systems that mark the history of mental healing.

To the contemporary trends in psychology psychoanalysis actually offered a rebuke, a challenge, a supplement, though it appeared to ignore them. With the practical purpose of applied psychology directed to human efficiency it had no direct relation and thus no quarrel. The solution of behaviorism, likewise bidding for popular approval by reducing adjustment to a program of conditioning, it inevitably found alien and irrelevant, as the behaviorist in reciprocity found psychoanalytic doctrine mystical, fantastic, assumptive, remote. Even to the cognate formulations of mental hygiene, as likewise in its contacts with related fields of psychology, psychoanalysis made no conciliatory advances. Towards psychiatry, its nearest of kin, it took an unfriendly position, quite too plainly implying a disdain for an unprogressive relative. These estrangements affected its relations throughout the domain of mind and its ills; but they came to head in the practice.

From the outset in the days of struggle, when it had but a sparse and scattered discipleship, to the present position of prominence, Freudianism went its own way, for the most part neglected by academic psychology. Of dreams, lapses and neuroses, orthodox psychology had little say. The second reason for the impression made by psychoanalysis when once launched against the tide of academic resistance was its recognition of depth psychology, so much closer to human motivation, so much more intimate and direct than the analysis of mental factors.

Most persons in trouble would be grateful for relief without critical examination of the theory behind the practice that helped them. Anyone at all acquainted with the ebb and flow of cures – cures that cure cures that fail – need not be told that the scientific basis of the system is often the least important factor. Many of these systems arise empirically within a practice, which by trial, seems to give results. This is not the case in psychoanalysis. Psychoanalysis belongs to the typical groups of therapies in which practice is entirely a derivative of theory. Here the pertinent psychological principle reads: “Create a belief in the theory, and the fact will create themselves”.

126. The distinctive feature of psychoanalysis is that

- (a) it provided the laymen with a scientific basis to the theories of psychology.
- (b) it blasted the popular theory that the conscious mind could be aptly linked the tip of an iceberg.
- (c) it provided effective means for the cure of mental disorders.
- (d) it rendered existing trends in psychology defunct.

127. The distinction between behaviorism and psychoanalysis that is heightened here is which of the following?

- (a) Behaviorism is wide in scope; psychoanalysis more restricted.
- (b) Behaviorism are more tolerant in their outlook; psychoanalysis more dogmatic.
- (c) Behaviorism traces all action to conditioning by habit; psychoanalysis to the depths of the human mind.
- (d) Behaviorism are more circumspect and deliberate in their propagation of theory; psychoanalysis jump to conclusion impetuously.

128. The statement which is refuted by the passage is this:

- (a) The popularity enjoyed by psychoanalysis is partly due to the disenchantment with traditional methods of psychology.
- (b) Psychoanalysis wooed people dissatisfied with other branches of psychology to swell their ranks.
- (c) Psychoanalysis were pioneers in the realm of analysis of the subconscious mind.
- (d) Psychoanalysis alienated allied branches of psychology.



129. Create a belief in theory and

- (a) belief will be created itself.
- (b) theory will be created itself.
- (c) facts will be created themselves .
- (d) All of the above.

130. Psychoanalysis are of the opinion that

- (a) methods of psychoanalysis must be in keeping with individual needs.
- (b) inferences can be drawn empirically from repeated experiments with any given theory.
- (c) theory leads to practice.
- (d) practice culminates into theory.

131. Freudian psychoanalysis was ignored by academic psychology because of which of the following?

- (a) Its theories were not substantiated by practical evidence.
- (b) It probed too deep into the human mind thereby divesting it of its legitimate privacy.
- (c) It did not have a large following.
- (d) It was pre-occupied with unfamiliar concepts such as dreams and the subconscious mind.

132. The only statement to receive support from the passage is which of the following?

- (a) Psychoanalysis concentrated more on the theoretical remedies than their practical implementation.
- (b) Psychoanalysis broke the shackles of convention in its involvement with humanistic issues.
- (c) The attitude of psychoanalysis towards allied branches of psychology could at best be described as indifferent.
- (d) Psychoanalysis dispelled the prevalent notion that dreams were repressed desires.

133. The popularity enjoyed by the psychoanalytical movement may be directly attributed to

- (a) dissatisfaction with existing methods of psychology.
- (b) its logical, coherent process of ratiocination.
- (c) its novel unconventionality in both postulate and practice.
- (d) its concentration upon the humanistic aspect of psychological analysis.

### Passage 2

It is undeniable that some very useful analogies can be drawn between the relational systems of computer mechanism and the relational systems of brain mechanism. The comparison does not depend upon any close resemblance between the actual mechanical links which occur in brains and computers; it depends on what the machines do. Further more, brains and computers can both be organized so as to solve problems. The mode of communication is very similar in both the cases, so much so that computers can now be designed to generate artificial human speech and even, by accident, to produce sequences of words which human beings recognize as poetry. The implication is not that machines are gradually assuming human forms, but that there is no sharp break of continuity between what is human, what is mechanical.

134. From the passage, it is evident that the author thinks

- (a) computers are now naturally programmed to produce poetry.
- (b) computers are likely to usurp the place of intellectual superiority accorded to the human brain.
- (c) the resemblance that the computer bears to the human brain is purely mechanical.
- (d) the unintentional mixing up of word sequences in the computer can result in poetry.

135. Computers have acquired a proven ability of performing many of the functions of the human brain because

- (a) the brain of modern man is unable to discharge its functions properly on account of over-reliance on machines.
- (b) the sophisticated computer mechanism is on the verge of outstripping human mental faculties.
- (c) the process of organizing and communicating are similar in both cases.
- (d) the mechanics of the human brain have been introduced in the computer.

136. The resemblance between the human brain and the computer is

- (a) imaginary.
- (b) intellectual.
- (c) mechanical.
- (d) functional.

137. The passage implies that

- (a) computers are assuming human forms.
- (b) human are assuming mechanical forms.

- (c) computers and humans are substitutable.  
 (d) there is continuity between what is human and what is mechanical.

138. The author uses the word 'recognize' in relation to computer poetry to convey a  
 (a) sense of sorrow at the reluctant admission of the superiority of machines by mankind.  
 (b) feeling that computers have yet to conquer the emotional heights that man is capable of attaining.  
 (c) feeling of derision for the popular faith in the omnipotence of the computer.  
 (d) feeling of a fatalistic acceptance of the computer's encroachment upon human bastions.

139. Points of dissimilarity between the human brain and the computer don't extend to  
 (a) the faculty of composing poetry.  
 (b) methods of communication.  
 (c) the faculty of composing poetry.  
 (d) the faculty of speaking naturally

### Passage 3

A distinction should be made between work and occupation. Work implies necessity; it is something that must be done as contributing to the means of life in general and to one's own subsistence in particular. Occupation absorbs time and energy so long as we choose to give them; it demands constant initiative, and it is its own reward. For the average person the element of necessity in work is valuable, for he is saved the mental stress involved in devising outlets for his energy. Work has for him obvious utility, and it brings the satisfaction of tangible rewards. Where as occupation is an end in itself, and we therefore demand that it shall be agreeable, work is usually the means to other ends – ends which present themselves to the mind as sufficiently important to compensate for any disagreeableness in the means. There are forms of work, of course, which since external compulsion is reduced to a minimum, are hardly to be differentiated from occupation. The artist, the imaginative writer, the scientist, the social worker, for instance, find their pleasure in the constant spontaneous exercise of creative energy and the essential reward of their work is in the doing of it. In all work performed by a suitable agent there must be a pleasurable element, and the greater the amount of pleasure that can be associated with work, the better. But for most people the pleasure of occupation needs the addition of the necessity provided in work. It is better for them to follow a path of employment marked out for them than to have to find their own.

When, therefore, we look ahead to the situation likely to be produced by the continued rapid extension of machine production, we should think not so much about providing occupation for leisure as about limiting the amount of leisure to that which can be profitably used. We shall have to put the emphasis on the work – providing rather than the goods – providing aspect of the economic process. In the earlier and more ruthless days of capitalism the duty of the economic system to provide work was overlooked. The purpose of competitive enterprise was to realize a profit. When profit ceased or was curtailed, production also ceased or was curtailed. Thus the workers, who were regarded as units of labour forming part of the costs of production, were taken on when required and dismissed when not required. They hardly thought of demanding work as a right. And so long as British manufacturers had their eyes mainly on the markets awaiting them abroad, they could conveniently neglect the fact that since workers are also consumers, unemployment at home means loss of trade. Moral considerations did not yet find a substitute in ordinary business prudence. The labour movements arose largely as a revolt against the conception of workers as commodities to be bought and sold without regard to their needs as human beings. In a socialist system it is assumed that they will be treated with genuine consideration, for, the making of profit not being essential, central planning will not only adjust the factors of production to the best advantage but will secure regularity of employment. But has the socialist thought about what he would do if owing to technological advance, the amount of human labour were catastrophically reduced? So far as I know, he has no plan beyond drastically limiting the hours of work, and sharing out as much work as there may be. And, of course, he would grant monetary relief to those who were actually unemployed. But has he considered what would be the moral effect of life imagined as possible in the highly mechanized state of future? Has he thought of the possibility of bands of unemployed and under-employed workers marching on the capital to demand not income (which they will have) but work?

140. Future, according to the passage, may find the workers

- (a) without money.
- (b) without work.
- (c) replacing machines.
- (d) without leisure.

141. The main defect of socialism at present is that

- (a) it has not evolved a satisfactory system of making workers co-sharers in prosperity.
- (b) it has not made work less burdensome for the mass of workers.
- (c) it has not taken into consideration the possibility of an immense reduction of human labour in the wake of mechanization.
- (d) it is not concerned with improving and streamlining the method of production.

142. The labour movement was the outcome of

- (a) an effort to increase productivity.
- (b) a move to make workers share in the prosperity of the capitalists.
- (c) a revolt against the conception of workers as commodities.
- (d) a move to avert mass unemployment because of the mechanization.

143. The chief purpose of competitive enterprise is to

- (a) create more job opportunities.
- (b) produce as much as possible.
- (c) create more wealth in the country.
- (d) realize the maximum profit.

144. In the situation created by the rapid extension of machine production, our object should be to

- (a) make work as light as possible.
- (b) provide increased opportunities for interesting occupation.
- (c) limit the amount of leisure to that which can be profitably used.
- (d) produce more and more goods.

145. The activities of the artist, the writer, the scientist etc. may be considered to be occupations because

- (a) they often does not have any utilitarian value.
- (b) external compulsion is reduced to a minimum and they are agreeable and require quite a lot of initiative.
- (c) they occupies time and energy only so long as the workers choose to give them.
- (d) they care only for the pleasure which brings them without any consideration of reward.

146. Which of the following statements is not true according to the information contained in the passage?

- (a) Work is something done as contributing to the means of life in general and to one's own subsistence in particular.
- (b) Occupation is something that requires initiative and can be done at one's will and pleasure and not as a task.
- (c) Work brings in tangible rewards while occupation is not utilitarian.
- (d) There is no form of work which shows approximation to occupation.

147. The chief reason for a person taking up an occupation may be stated to be :-

- (a) a desire to make profit.
- (b) an irresistible urge to do something uncommon.
- (c) a wish to do something useful to society.
- (d) a desire to do something which requires initiative and doing it at his will and pleasure.

148. The distinction between work and occupation is as follows :-

- (a) Work at all times is unpleasant and occupation is always agreeable.
- (b) In work there is an element of necessity which is totally wanting in occupation.
- (c) Work has obvious utility and brings tangible rewards, while occupation is an end in itself.
- (d) Work and occupation often seem to be so very much alike that no distinction can be made between them.

## Passage 4

If the more articulate members of a community formed a coherent and united class with a common interest, democracy would probably replace in to the rule of that intelligent, educated minority; even as it is, the democracies of the modern world are much closer to this fate than they are to the much-canvassed dangers of mob rule. Far from oppressing the cultured minority, or any other minorities, democracy gives more of them more scope to have their way than any other system does. This is the lesson of experience. It might also have been derived from an analysis of the concept of democracy, if the concept had been accurately analyzed.

149. The word articulate here refers to

- (a) the elite.
- (b) people who are endowed with a native intelligence.
- (c) that class which is well educated.
- (d) people who are endowed with clarity of speech.

150. What emerges as the truth from a reading of the paragraph is that

- (a) forms of government other than democracy give the mobs great scope for self expression.
- (b) democracy provides greater scope for mob rule.
- (c) democracy provides greater scope for the rule of the minority.
- (d) forms of government other than democracy give the educated minority greater scope for self expression.

151. Our appreciation of the virtues of the democratic system

- (a) is the result of an illusory concept.
- (b) is the result of our negative response to other forms of government.
- (c) is the result of a proven record of the success of democracy.
- (d) is the result of centuries of accurate research on the theoretical aspects of democracy.

152. The wide scope that democracy offers to the minorities can be made known

- (a) by our common sense.
- (b) by our political theories.
- (c) by our native intelligence.
- (d) by proper analysis.

153. The author seems to be

- (a) a supporter of mob rule.
- (b) a supporter of democracy
- (c) against intelligence in minorities.
- (d) analysing the flaws of democracy.

154. The institution of democracy, in modern times

- (a) is on the brink of extinction.
- (b) has become vulnerable to the dangers of proletariat rule.
- (c) should be prepared for the inevitability of mob rule.
- (d) has become prone to the rule of particular class of people.

## Passage 5

A difficult readjustment in the scientist's conception of duty is imperatively necessary. As Lord Adrain said in his address to the British Association, "unless we are ready to give up some of our old loyalties, we may be forced into a fight which might end the human race". This matter of loyalty is the crux. Hitherto, in the East and in the West alike, most scientists, like most other people, have felt that loyalty to their own state is paramount. They have no longer a right to feel this. Loyalty to the human race must take its place. Everyone in the West will at once admit this as regards Soviet scientists. We are shocked that Kapitza who was Rutherford's favourite pupil, was willing when the Soviet government refused him permission to return to Cambridge, to place his scientific skill at the disposal of those who wished to spread communism by means of H-bombs. We do not so readily apprehend a similar failure of duty on our own side. I do not wish to be thought to suggest treachery, since that is only a transference of loyalty to another national state. I am suggesting a very different thing; that scientists the world over should join in enlightening mankind as to the perils of a great war and in devising methods for its prevention. I urge with all the emphasis at my disposal that this is the duty of scientists in East and West alike. It is difficult duty, and one likely to entail penalties for those who perform it. But after all it is the labours of scientists which have caused the danger and on this account, if on no other, scientists must do everything in their power to save mankind from the madness which they have made possible. Science from

dawn of history, and probably longer, has been intimately associated with war. I imagine that when our ancestors descended from the trees they were victorious over the arboreal conservatives because flints were sharper than coconuts. To come to more recent times, Archimedes was respected for his scientific defense of Syracuse against the Romans; Leonardo obtained employment under the Duke of Milan because of his skill in fortification, though he did mention in a postscript that he could also paint a bit. Galileo similarly derived an income from the Grand Duke of Tuscany because of his skill in calculating the trajectories of projectiles. In the French Revolution those scientists who were not guillotined devoted themselves to making new explosives. There is therefore no departure from tradition in the present day scientist's manufacture of A-bombs and H-bomb. All that is new is the extent of their destructive skill.

I do not think that men of science can cease to regard the disinterested pursuit of knowledge as their primary duty. It is true that new knowledge and new skills are sometimes harmful in their effects, but scientists cannot profitably take account of this fact since the effects are impossible to foresee. We cannot blame Columbus because the discovery of the Western Hemisphere spread throughout the Eastern Hemisphere an appallingly devastating plague. Nor can we blame James Watt for the Dust Bowl although if there had been no steam engines and no railways the West would not have been so carelessly or so quickly cultivate(d) To see that knowledge is wisely used in primarily the duty of statesmen, not of science; but it is part of the duty of men of science to see that important knowledge is widely disseminated and is not falsified in the interests of this or that propaganda.

Scientific knowledge has its dangers; but so has every great thing. And over and beyond the dangers with which it threatens the present, it opens up, as nothing else can, the vision of a possible happy world, a world without poverty, without war, with little illness. And what is perhaps more than all, when science has mastered the forces which mould human character, it will be able to produce populations in which few suffer from destructive fierceness and in which the great majority regard other people, not as competitors, to be feared, but as helpers in a common task. Science has only recently begun to apply itself to human beings except in their purely physical aspect. Such science as exists in psychology and anthropology has hardly begun to affect political behaviour or private ethics. The minds of men remain attuned to a world that is fast disappearing. The changes in our physical environment require, if they are to bring well being, correlative changes in our beliefs and habits. If we cannot effect these changes, we shall suffer the fate of the dinosaurs, who could not live on dry land.

I think it is the duty of science – I do not say of every individual man of science – to study the means by which we can adapt ourselves to the new world There are certain things that the world quite obviously needs; tentativeness, as opposed to dogmatism in our beliefs: an expectation of co-operation, rather than competition, in social relations, a lessening of envy and collective hatred These are things which education could produce without much difficulty. They are not things adequately south in the education of the present day.

It is progress in the human sciences that we must look to undo the evils which have resulted from a knowledge of the physical world hastily and superficially acquired by populations unconscious of the changes in themselves that the new knowledge has made imperative. The road to a happier world than any known in the past lies open before us if atavistic destructive passion can be kept in leash while the necessary adaptations are made. Fears are inevitable in our time, but hopes are equally rational and far more likely to bear good fruit. We must learn to think rather less of the dangers to be avoided than of the good that will be within our grasp if we believe in it and let it dominate our thoughts. Science, whatever unpleasant consequences it may have by the way, is in its very nature a liberator, a liberator of bondage to physical nature and, in time to come a liberator from the weight of destructive passion. We are on the threshold of utter disaster or unprecedented glorious achievement. No previous age has been fraught with problems so momentous and it is to science that we must look for happy issue.

155. The duty of science, according to the author is :-

- (a) to realize the vision of a happy new world
- (b) to pursue knowledge for its own sake
- (c) to see that only such discoveries as conducive to the progress of humanity should be made
- (d) to study the means by which we can adapt ourselves to the new world

156. Archimedes, Leonardo and Galileo have been mentioned to substantiate the statement that

- (a) science has always been intimately associated with war
- (b) from ancient times science has played a leading part in the life of man
- (c) all learning has flourished only under the patronage of royalty and eminent personages
- (d) in the past pursuit of knowledge was done for its own sake

157. The ground on which the author suggests that all scientists should join in educating mankind regarding the perils of a great war is that

- (a) scientists being among the most learned among people, should take the lead in this process of education.
- (b) it is the work of scientists which has led to this perilous situation and so they should do something to undo the mischief.
- (c) science has always been associated with war and in the fitness of things, scientists should take the lead in trying to end it.
- (d) all others like politicians and soldiers have vested interest in perpetuating war and by elimination, scientists alone may be trusted to work for its abolition.

158. In modern times, the crux of the matter as far as scientists are concerned is that

- (a) their loyalty to the state should be declared in no uncertain terms.
- (b) a readjustment in the scientist's conception of duty is imperatively necessary.
- (c) they should not object to stringent control by the state over their activities.
- (d) they should assert their independence and refuse to subject themselves to any kind of control.

159. The instance of Kaptiza cited by the author goes to prove that

- (a) every scientist has his price.
- (b) in Soviet Russia, communists do not tolerate independent scientists.
- (c) scientists, whether in the East or West, have hitherto felt that loyalty to their own state is paramount.
- (d) scientists in the West have a higher sense of responsibility than their counterparts in the East.

160. Which among the following statements is not true according to the information provided in the passage?

- (a) If there is no readjustment in the scientist's conception of duty, the extinction of the human race by war is a distinct possibility.
- (b) Up till now, scientists all over the world have felt that loyalty to their own state is paramount
- (c) It is the labours of scientists which have caused the danger of annihilation of mankind.
- (d) The tradition up to now has been that scientists have been respected for their pursuit of knowledge and not for their part in devising potent weapons of destruction

161. The duty of the scientist, according to the passage, is

- (a) to further the interests of his state with as much devotion as possible
- (b) to pursue knowledge regardless of the consequences of their discoveries and inventions
- (c) to see that important knowledge is widely disseminated and is not falsified in the interests of propaganda
- (d) to refuse to serve national interests

162. The evils which have resulted from knowledge of the physical world can only be overcome by

- (a) a more intensive pursuit of scientific knowledge
- (b) making scientists more responsible to society
- (c) adequate progress in the human sciences
- (d) enlightening the general public about the evils

163. Science may be considered a liberator in the sense that :-

- (a) ultimately it may bring the nations of the world together
- (b) it may make man's life a great deal happier than what it is now
- (c) it may free man from bondage to physical nature and the weight of destructive passions
- (d) it may end the tyranny of age old beliefs and superstitions.

**Passage 6**

We have planned development with a view to raising standard of living of our teeming millions. Hence our economic development is inspired by social justice.

164. Which of the following will weaken the argument?

- (a) Without economic development standard of living cannot be raised.
- (b) Social justice implies economic prosperity.
- (c) Development cannot be planned.
- (d) None of these.

165. The argument is based on which of the following assumptions?

- I. Social justice is our aim and economic development is the means.
- II. There is overpopulation in India.
- III. Economic development will lead to social justice.

- (a) Only I
- (b) Both I and II
- (c) Both I and III
- (d) Both II and III

166. Which of the following will strengthen the argument?

- (a) Social justice can be done by raising the standard of living
- (b) Economic planning is necessary for every state.
- (c) For economic development production should be increased.
- (d) None of these.

**Passage 7**

We will have to take more interest in hydro-electric projects. As the prices of oil have increased, it has become vital that such renewable sources of energy are tapped.

167. The assumption/assumptions of the argument is /are which of the following?

- I. Hydro electric power is a renewable source of energy.
- II. Hydro electric power is comparatively cheaper.

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

168. Which of the following will weaken the argument?

- (a) Generation of hydroelectric power is more costly than oil.
- (b) OPEC increased oil prices.
- (c) Without energy we cannot manage.
- (d) None of these.

**Passage 8**

There can be no civilization without music, dance or art, for one is not fully, vibrantly alive without them.

169. The assumption/assumptions of the argument is /are which of the following?

- I. Civilization and art are closely linked up.
- II. If people are not full of life there can be no civilization.

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

170. Which of the following would weaken the argument?

- (a) Music is the life of man.
- (b) Living persons like music.
- (c) Art has no relation with civilization.

(d) None of these.

171. Which of the following would strengthen the argument?

- (a) Music, dance and art are human activities.
- (b) Only the vibrantly alive can contribute to civilization.
- (c) Music injects new life in man.
- (d) None of these.

### Passage 9

It is sometimes mooted that there can be democracy in a two party system. That would be correct if politics were a game like cricket or football; but politics is not sports.

172. Which of the following would strengthen the argument?

- (a) Two party system functions well
- (b) Politics is a dirty game.
- (c) Two political parties limit the choice of the voters.
- (d) None of these.

173. Which of the following would weaken the argument?

- (a) The game of politics is played like any other game, for example, football.
- (b) Politics is not a sport.
- (c) Political parties struggle for power.
- (d) None of these.

174. The assumption/assumptions of the argument is/are which of the following?

- I. Politics is not a game.
  - II. Two party system is ideal for democracy.
  - III. Cricket is played by two teams.
- (a) Only I
  - (b) Only II
  - (c) Only III
  - (d) I, II, III



Solution Key

1	(d)	21	(c)	41	(c)	61	(a)	81	(d)	101	(c)	121	(a)	141	(c)	161	(c)
2	(c)	22	(c)	42	(c)	62	(b)	82	(c)	102	(d)	122	(a)	142	(c)	162	(c)
3	(c)	23	(c)	43	(d)	63	(c)	83	(b)	103	(c)	123	(a)	143	(d)	163	(c)
4	(a)	24	(b)	44	(a)	64	(c)	84	(a)	104	(b)	124	(d)	144	(c)	164	(c)
5	(b)	25	(c)	45	(b)	65	(a)	85	(d)	105	(b)	125	(d)	145	(b)	165	(c)
6	(b)	26	(b)	46	(c)	66	(a)	86	(d)	106	(b)	126	(c)	146	(d)	166	(a)
7	(b)	27	(c)	47	(d)	67	(b)	87	(a)	107	(b)	127	(c)	147	(d)	167	(c)
8	(a)	28	(b)	48	(c)	68	(b)	88	(c)	108	(a)	128	(b)	148	(c)	168	(a)
9	(d)	29	(a)	49	(d)	69	(a)	89	(d)	109	(a)	129	(c)	149	(c)	169	(b)
10	(a)	30	(a)	50	(b)	70	(d)	90	(a)	110	(b)	130	(c)	150	(c)	170	(c)
11	(b)	31	(a)	51	(b)	71	(a)	91	(a)	111	(c)	131	(d)	151	(c)	171	(b)
12	(d)	32	(d)	52	(c)	72	(a)	92	(a)	112	(b)	132	(b)	152	(d)	172	(c)
13	(b)	33	(a)	53	(c)	73	(c)	93	(b)	113	(b)	133	(d)	153	(b)	173	(a)
14	(a)	34	(d)	54	(c)	74	(b)	94	(c)	114	(b)	134	(d)	154	(d)	174	(c)
15	(a)	35	(c)	55	(d)	75	(c)	95	(b)	115	(b)	135	(c)	155	(d)		
16	(b)	36	(d)	56	(b)	76	(c)	96	(d)	116	(a)	136	(d)	156	(a)		
17	(a)	37	(d)	57	(c)	77	(b)	97	(c)	117	(c)	137	(d)	157	(b)		
18	(a)	38	(b)	58	(b)	78	(a)	98	(d)	118	(b)	138	(b)	158	(b)		
19	(b)	39	(b)	59	(a)	79	(b)	99	(c)	119	(d)	139	(b)	159	(c)		
20	(c)	40	(d)	60	(d)	80	(a)	100	(d)	120	(b)	140	(b)	160	(d)		

## Explanatory Answers

1. The first blank should have a plural. Hence either b or d is the right choice. And genes are hereditary particles, making d. the right option.
2. 'Backed up' a claim is the correct idiomatic usage.
3. Only 'ventured' fits in the first blank properly.
4. A scarcity of goods is often accompanied by high prices.
5. The correct usage is - disturbances 'blow over'.
6. Misalliance refers to an alliance between people not normally looked upon as suitable for each other.
7. 'Reflexes' implies a movement made in response to something.
8. The art and science of good eating and drinking is called gastronomy.
9. 'Horror' as a noun can mean an enjoyable feeling of fear from listening to a story or from watching a movie, and is thus different from 'terror', which cannot be enjoyable.
10. 'Phalanx' means a number of people standing close together for a specific purpose.
11. "Enhanced" means to increase or improve the quality or value of something. The correct usage here would be 'increased'. The contracted form 'its' and not 'it's' shows the possessive form of the pronoun.
12. The sentence is divided into three different clauses hence each should be separated by a semicolon.
13. We need to use 'who' for the subject Mr. Som. Choice d. is not correct due to the wrong placement of the comma after 'who'.
14. The plural pronoun 'those' should take a plural verb 'believe'.
15. 'Its' and not 'it's' is the correct contracted possessive form for 'it'. 'It's' means 'it is'.
16. The 'state of affairs' is a singular noun hence should be followed by a singular verb 'was'.
17. The pronoun 'one' should remain the same throughout the sentence.
18. We are talking about each individual student among a group of students, so the verb should be singular.
19. 'None' implies a singular noun (no one) hence it should be followed by a singular verb was.
20. Because we are talking about a particular king we should use 'the king'. Moreover the verb should be consistent with the noun after 'nor'. The noun is a plural one hence should take a plural verb desire.
21. Choice c. is the most concise and appropriate sentence. Others are vague, confusing or too wordy.
22. All other options are either confusing or unnecessarily wordy. Choice c. uses the phrase 'are better in quality' instead of a more appropriate 'are of better quality' as used in choice b.
23. Choice c. uses the simplest and most concise words.
24. Choice b. uses the appropriate degree of politeness. Choice d. is wrong as it does not tell how much milk powder is required. Others are overtly polite.
25. 'Whenever' implies at any time, hence c. is a better choice than d. Other choices are unnecessarily wordy.
26. 'Unexpected' and 'unanticipated' are synonyms, so using both in a sentence is redundant. Moreover 'consequence' is a better word to suggest the result of something on something else.
27. The appropriate idiomatic use is 'definition should agree with'.
28. "Much obliged" serves the same purpose as 'very much obliged' and is thus preferable.
29. Choice a. is the most concise and appropriate option.
30. "Looking back" is the correct idiomatic usage.
31. Just as a road is a medium for a car, a cable is a medium for electricity.
32. Both the pairs are synonyms with two nouns.
33. A fleet is a part of navy, just as a chapter is a part of a book. Moreover, both a fleet and a chapter are complete entities in themselves unlike a drop, a letter or a chair.
34. Many feathers together make a wing and many bricks together make a wall.
35. Just as sugar goes into tea, a button goes into the buttonhole.
36. Just as one pays rent when one takes something on a lease, one pays interest on borrowing something, pays salary on employing someone and pays a price to buy something. But one does not pay tax on governing someone.
37. In all other pairs the first word is used to measure the second.
38. Just as a progressive person leads to progress, the second word of the pair in all other choices except b. leads to the first word of the pair. A sympathizer 'gives', and not 'leads to' sympathy.
39. All others pairs have words that are opposites of each other.
40. In all other pairs, the first word holds the second together. For example clips hold papers together and a ribbon holds hair together. But vegetables are put inside a bag.
41. If some of my closest friends are aardvarks, but all of them disapprove of me, it implies that some of those who disapprove of me are aardvarks.
42. All those who achieve good ends are happy and all young people achieve good ends. Therefore all young people are also happy.
43. If some learned men are candid but all candid men recognize merit in a rival, it follows that some men recognize merit in a rival are learned.
44. Because all roses are plants and all plants need air, it follows that roses need air.

- 45. If all men are men of scientific genius and some men are men of artistic ability, it follows that all the men of artistic ability are men of scientific genius.
- 46. If no fishes breathe through lungs and all whales breathe through lungs it implies that no whales are fishes.
- 47. Because all whales are mammals and some of them are aquatic animals, it follows that some of the aquatic animals are mammals.
- 48. If all students of this college rank as university students, and all university students are entitled for the prize, it follows that even the first year students can enter for the prize.
- 49. If nothing that is uncertain is worth dying for and all beliefs are uncertain than it implies that no belief is worth dying for.
- 50. Anyone who is sane can do logic, and anyone who can do logic is fit to serve on a jury. Therefore anyone who is sane is fit to serve on a jury.

51. From the question we can figure out that P lies between 2371 and 2379. From the 1<sup>st</sup> statement it can be said that P can be 2372 or 2376 and hence R can be 2 or 6. But from the 2<sup>nd</sup> statement it can be said that P can only be 2376 and hence R = 6. So from the 2<sup>nd</sup> statement alone we can have a unique value for R.
52. From the first statement we can find that number of chocolates given to children more than 5 years old is 5a (where a is the number of children above 5 years old). From the second statement we can find that number of chocolates given to children 5 years or younger is 6b (where b is the number of children equal to or less than 5 years old). So using both statements together we have :  $5a + 6b = 43$ . Since a and b have to be integers, there is only one pair of values that satisfies above equation, viz.  $a = 5$  and  $b = 3$ .
53. If the distance between Calcutta and Madras is x, then the distance between Madras and Trivandrum = 0.3x and total distance between Calcutta and Trivandrum is 1.3x. If the average speed between Calcutta and Madras is y, then the average speed between Madras and Trivandrum = 2y. Hence total time taken =  $(x/y + 0.3x/2y)$ .  
Average speed = Total Dstance/Total Time =  $1.3x / (x/y + 0.3x/2y) = 1.3 / (1/y + 0.3/2y) = 40$  kmph. Since y is the only unknown, its value can be determined and hence the average speed between Madras and Trivandrum can be found. Thus we require both statement to answer the question.
54.  $(x + z)$  can be written as  $(y - x) + (z - y) + 2x = 2x + 2 + 2 = 2x + 4$ . For this to be divisible by 4, 2x has to be divisible by 4 or x has to be even. But x is odd integer and hence  $(x+z)$  is not divisible by 4. Thus using both statement together, we can determine the answer to the given question.
55. Although using both the statements we can find out by how much has the price of P1 and P2 changed over the 5 years, we cannot answer the question that is being asked as it is no where mentioned that the rate of change is uniform.
56.  $X > Y, Z < W$  and  $V > Y$ . If we were to look at all of them we can say that,  $X, V > Y$  &  $W > Z$ . The first statement gives a uncertain situation using “may”, hence we cannot definitely say about the answer. The second statement says,  $V > W$  and hence  $V > Z$ . This again is does not say anything because we do not know whether  $X > Z$  or  $X < Z$ . Hence the answer is (d)
57. From the 1<sup>st</sup> statement we can find that the stopping time was  $1^2 + 2^2 + 3^2 + \dots + 10^2$  minutes (we can determine this as this is the sum of squares of 1<sup>st</sup> 10 natural numbers). From the 2<sup>nd</sup> statement we can find that the traveling time was 5000/66 hours. Hence by using both the statements together we can find the answer.
58.  $[(x^{-1} - y^{-1}) / (x^2 - y^2)] = (1/x - 1/y) / (1/x^2 - 1/y^2) = (1/x - 1/y) / [(1/x - 1/y)(1/x + 1/y)] = 1 / (1/x + 1/y)$ . For this to be  $> 1$ ,  $(1/x + 1/y)$  has to be  $< 1$ . For this either both x and y have to be greater than 2. The first statement doesn't tell you anything about this, but the second statement clearly specifies this. Hence only 2<sup>nd</sup> statement is required to answer the given question.
- 59-60 : KITS students please note that the best way to answer this question is by finding generally what would ensure a win for B. If B has to win, A has pickup the last matchstick. This can be forced upon A if there are 2 or 3 matchsticks left on the table when it is B's turn. As then, B could pickup 1 or 2 matchsticks and force upon A to pickup the last one. For this to happen there should always be odd number of matchsticks initially. Eg. If there are 7 match sticks initially any of the following combinations will leave either 2 or 3 matchsticks on the table when it is B's turn.

A	B	B	A			
1	2	3	4	5	6	7

A	B	B	A	A		
1	2	3	4	5	6	7

A	A	B	A			
1	2	3	4	5	6	7

A	A	B	A	A		
1	2	3	4	5	6	7

Hence the smallest value of N (greater than 5) to ensure a win for B is 7. Also the largest value of N (less than 50) to ensure a win for B is 49.

61. For the bird keeper to figure out that at least 1 pigeon had escaped, the number of mynahs has to be less than 7. In other words,  $y < 7$ . Hence the pair (10,8) is not a valid one.
62. The last digit of the powers of 2 repeat in the order 2, 4, 8, 6, 2, 4, 8, 6 ... Thus every power of 2 which is a multiple of 4 has last digit 6. The 60<sup>th</sup> power will hence have 6 as the last digit, and hence the remainder when divided by 5 is 1.
63. If we find the repeated square root of a positive integer, the answer always tends to 1.
64.  $1/(1 \times 2) + 1/(2 \times 3) + 1/(3 \times 4) + \dots + 1/(100 \times 101) = (1 - 1/2) + (1/2 - 1/3) + (1/3 - 1/4) + \dots + (1/99 - 1/100) + (1/100 - 1/101) = 1 - 1/101 = 100/101$ .
65.  $1/(1 - x) + 1/(1 + x) + 1/(1 + x^2) + 1/(1 + x^4) = 2/(1 - x^2) + 2/(1 + x^2) + 4/(1 + x^4) = 4/(1 - x^4) + 4/(1 + x^4) = 8/(1 - x^8)$ .
66. KITS students please note that the best way to solve this example is the method of reverse substitution. And hence we find that the answer is (a).
67. If there is only one box containing black ball, the boxes can be filled in 6 ways. If there are two boxes containing black ball, the boxes can be filled in 5 ways. (The two black balls in either of the boxes (1,2), (2,3), (3,4), (4,5), (5,6)). If there are 3 boxes containing black ball the boxes can be filled in 4 ways viz.(123), (234), (345), (456). Similarly if there are 4 boxes, it can be done in 3 ways viz.(1234), (2345), (3456), if there are 5 boxes it can be done in 2 ways viz.(12345), (23456) and all 6 boxes can have a black ball only in 1 way. Hence total number of ways =  $6+5+4+3+2+1 = 21$ .

Step	X	Y	XY	Y+1
1	1	2	2	3
2	2	3	6	4
3	6	4	24	5
4	24	5		

69. Let there be 100 products in the stockpile. Hence products from M1 = 40, from M2 = 30 and from M3 = 30. Number of defective products from M1 =  $0.03 \times 40 = 1.2$ , from M2 =  $0.01 \times 30 = 0.3$  and from M3 =  $0.05 \times 30 = 1.5$ . Therefore total number of defective products = 3, and percentage defective = 3%.

70.  $x*y = 1.5x - x^2$  and  $y*y = 1.5y - y^2$

So if  $xx < yy$ , then  $1.5x - x^2 < 1.5y - y^2$  i.e.  $y^2 - x^2 < 1.5(y - x)$  or  $(y - x)(y + x) < 1.5(y - x)$

This is valid only if  $(y - x)$  is not equal to 0. Also if  $(y - x)$  is a negative number, the equality sign will change. To maintain the inequality,  $y - x$  has to be  $> 0$ , i.e.  $y > x$ . And if  $(y - x) > 0$ , we can cancel out this factor so that the equality sign does not change. Therefore we have  $(x + y) < 1.5$ . Since  $x$  and  $y$  are both greater than 0.5,  $(x + y) < 1.5$  only if both  $x$  and  $Y$  are less than 1. Hence we have  $1 > y > x$ .

Since the summation of all terms =  $p/(p - 1) = -p/(1 - p)$ , this looks familiar to the formula of summation of a GP of an infinitely diminishing series viz.  $a/(1 - r)$ . Comparing the two formulae, we get  $a = -p$  and  $r = p$ .  $f(k)$  is the  $k^{\text{th}}$  term of this series given by  $ar^{(k-1)}$ . Hence  $f(k) = -p \times p^{(k-1)}$  i.e.  $p(-p)^{k-1}$

72. There are 116 players in all. If we have to choose 1 winner, there have to be 115 losers in all. And since 1 match gives 1 loser, there has to be 115 matches to be played in all in the tournament.

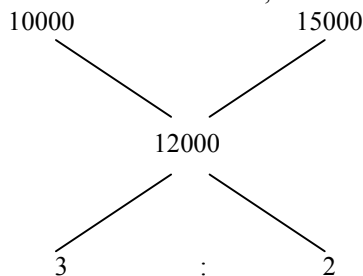
73.  $n^3 - n = n(n^2 - 1) = (n - 1)n(n + 1) =$  product of three consecutive numbers. So at least one number is even, and one number is a multiple of 3. So the product is divisible by 6. KITS Students please note that can also be done by the method of simulation i.e choosing any value of  $n$  and verifying the answer choices. However you need to be careful in choosing the values. You may choose such a value that the answer is divisible by 12 and hence also by 6.

Alternatively, you may choose to eliminate answer choices by using the above rule. If a number is divisible by 12, it also has to be divisible by 6. Since both of them cannot be the answer you can eliminate option (a). Also if a number is not divisible by 6, it will not be divisible by 12 either and hence you can eliminate option (d) as well.

74.  $(1 - d^3) / (1 - d) = (1 - d)(1 + d + d^2)/(1 - d) = (1 + d + d^2)$  If  $d > 1$ , then  $d^2 > 1$  and  $(1 + d + d^2) > 3$ . Hence (b) is the right answer

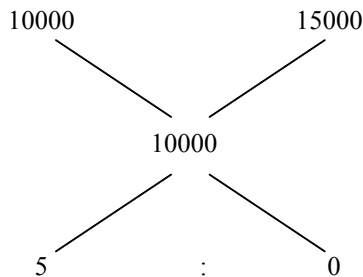
Let Gopal have Rs. 400. The price of an orange is then Rs. 8 and that of a mango is Rs.10. If he keeps 10% of the money for taxi fare, he is left with Rs.360. Now if he buys 20 mangoes i.e. if he spends 200 Rs., he is left with Rs.160, in which he can buy 20 oranges.

76. Since average cost per piece =  $1200000/100 =$  Rs.12000, if we alligate we get



Hence, he should stock 60 TV's and 40 VCR's.

77. If 20 more items are stocked, the average cost per piece would now be  $1200000/120 =$  Rs.10000. Now if we alligate we get



Hence, the ratio VCR's and TV's is 0.

78. For maximising profits, we have figured out that he should stock 60 TV's and 40 VCR's. Now per TV he is making a profit of  $(12200 - 10000) =$  Rs.2200 and per VCR he is making a profit of  $(18300 - 15000) =$  3300. So his profit will be  $(2200 \times 60) + (3300 \times 40) = 264000$  i.e. 2.64 lakhs.

79 to 81:

Since Ghosh babu distributed his property equally among his 4 daughters, each one of them should get 25% of the property. The eldest daughter got 20% of the total property and Rs.25000 in cash. So, Rs.25000 should constitute 5% of the total property. Hence the total property is worth Rs.5 lakhs. This the answer to Q80.

Now, the total cash given by him = Rs.25000 (eldest daughter) + Rs.50000 (second daughter) + Rs.150000 (i.e. Rs.75000 each to his third and fourth daughters) = Rs.225000. So, out of his total property of Rs.500000, Rs.225000 is cash, so the gold and silver should be worth Rs.275000. This is the answer to Q79.

If Ghosh Babu has equal number of gold and silver bars, the value of 1 gold bar and 1 silver bar is Rs.5000 (i.e. Rs.4000 + Rs.1000) and the total worth of gold and silver bars is Rs.275000. Hence there has to be  $275000/5000 = 55$  gold and silver bars each. This is the answer to Q81.

KITS students please note that this set of questions can intelligently be solved by looking at the answer choices. Since we know that the combined value of 1 gold and 1 silver bar should be Rs.5000, so the answer to Q79 when divided by 5000 should give the answer to Q81. The only pair of answer choices that satisfies this is Rs.275000 and 55. Hence answers to Q79 and Q81 can be obtained without much effort. Remember the golden rule : whenever you have questions in a set, read all the questions first before you go on to solve them.

82 to 84. :  
82.

2	1	2	4
5	1	6	7
9	1	3	2
6	1	8	4

**Initial Board**

		2	4
		6	7
		3	2
		8	4

**After your move (Retain right)**

		2	4
		6	7

**After your friends move (Retain upper)**

		2	
		6	

**After your move (Retain left)**

		2	

**After your friends move (Retain upper)**

Since you choose to retain right and then left in your next move, the cells that would hence be retained contain 2,6,3,8. (look at the second grid) Hence the to reduce your gain to minimum, your friend has to retain 2 at the end. So his strategy has to be retain upper and retain upper.

83. If both of you select the moves intelligently, you would both go for maximising your earnings.

In your first move you have to select either left or right and your friend has to then select either upper or lower. Hence the possibilities could be :

2	1	2	4
5	1	6	7
9	1	3	2
6	1	8	4

		2	4
		6	7

		3	2
		8	4

2	1		
5	1		

9	1		
6	1		

You Move	Your Friend Moves	Integers left for your 2 <sup>nd</sup> move	Minimum gain ensured
(Retain Right)	(Retain Upper)	2, 4, 6, 7	4 (after you move retain right)
	(Retain Lower)	3, 2, 8, 4	3 (after you move retain left)
(Retain Left)	(Retain Upper)	2, 1, 5, 1	2 (after you move retain left)
	(Retain Lower)	9, 1, 6, 1	6 (after you move retain left)

So, if you move (retain right) you ensure a minimum gain of Rs.3 and if you move (retain left) you ensure a minimum gain of Rs.2. Hence if both of you play intelligently, you would first move retain right and ensure a minimum win of Rs.3, irrespective of what your friend moves.

84. If your first move is (retain right) then the grid will look the same as in Q82. Your friend may hence choose either (retain upper), which will leave you to choose from 2,4,6,7 or he may choose (retain lower), which will leave you to choose from 3,2,8,4. In case he takes the former move, you can then move (retain right) and hence force a minimum gain of 4. But in case he chooses the latter move, you can then move (retain move) and force a minimum gain of 3. In either case you can force a minimum gain of Rs.3
85. If the roots are reciprocal of each other their product = 1. But product of roots in our equation = 6/a. Therefore  $6/a = 1 \therefore a = 6$ .
86. It can be seen that by travelling 12 km more at original speed, the car reaches 9 minutes earlier. So, in order to reach 45 minutes earlier, it has to travel a distance of 60 km more. So the distance between points A & B = (18 + 60) = 78 kms. Hence the answer is (d).
87. If there are 120 units of the work to be done, A would finish  $1/6^{\text{th}}$  of it in 1 day i.e. 20 units, B will finish  $1/8$  of it in 1 day i.e. 15 units and C will finish  $1/15^{\text{th}}$  of it in 1 day i.e.8 units. So, the amount of work done by A, B and C are in ratio 20 : 15 : 8. This should be ratio in which the total earning should be divided into. So, A, B and C would get Rs.44, Rs.33 and Rs.17.60 respectively.
88. To completely cross each other the trains have to effectively travel a distance equal to the sum of their lengths. They cover this distance at a effective speed of  $(60 + 50) = 110$  kmph in 5 sec. Hence the sum of the lengths =  $110 \times (5/3600) = 0.152.78$  km or 152.78 m. For the passenger sitting in the faster train to cross the slower train completely, he should have moved through a distance equal to the length of the slower train. Also since the trains are moving in the same direction, effective speed =  $(60 - 50) = 10$  kmph. Since the distance equal to the length of the slower train is covered in 18 secs., the length of the slower train =  $10 \times (18/3600) = 0.05$  km or 50 m. Thus the length of the faster train is  $(152.78 - 50) = 102.78$  m.
89. If we are to take out the first elements of each set we find them as : 1, 2, 4, 7, 11, 16.....  
This series is neither an AP nor a GP, but the difference between the terms viz.1, 2, 3, 4, 5 ..... is in AP with a=1 and d=1. Hence to find the 50<sup>th</sup> term of the original series we have to add the sum of 49 terms of the second series to the first term of the original series. Since the difference series is the natural number series, the sum of first 49 terms =  $(49 \times 50)/2 = 1225$ . Hence the 50<sup>th</sup> term of the original series =  $(1225 + 1) = 1226$ . This will be the first element of the set  $S_{50}$ , which will have 50 elements ie. The last element will be 1275. So, the sum of the elements in this set is given as :  $n(a + l)/2 = 50 \times (1226 + 1275)/2 = 62525$ .
90. The side of every inner square will be  $1/\sqrt{2}$  times the side of the outer square. Hence the area of every inner square will be  $1/2$  the area of the outer square. The area of the outermost square = 64 sq. cm. So the area of the 2<sup>nd</sup> square would be 32 sq.cm., the 3<sup>rd</sup> square would be 16 sq.cm. and so on. Hence the sum of all these areas would be :  $64 + 32 + 16 + 8 + 4 + \dots$ . This forms a GP with a = 64 and  $r = 1/2$ . It is also a infinitely diminishing series. Hence the sum of all terms =  $a/(1 - r) = 64/(1 - 1/2) = 128$  sq. cm.
- 91 to 94 :
91. FORWARD 25, BACKWARD 10 would effectively mean a FORWARD 15 i.e.  $n_2 - n_1 = 15$ , (if  $M - n_1 > 25$ ) and  $n_2 = M - 10$  (if  $M - n_1 < 25$ ). The only option that satisfies this is option (a). So if  $M = 10$  and  $n_1 = 0$ ., then  $M - n_1 < 25$  and so  $n_2 = 10 - 10 = 0$ . Hence,  $n_1 = n_2$
92. BACKWARD, 5; FORWARD, 5 would effectively mean  $n_1 = n_2$  (in case  $n_1 \geq 5$ ) or  $n_2 = 5$  (in case  $n_1 < 5$ ). The only option that satisfies this is (a).
93. FORWARD, 10 ; FORWARD, 10 would effectively mean a FORWARD 20 i.e.  $n_2 - n_1 = 20$ , (if  $M - n_1 \geq 20$ ) .or  $n_2 = M$  (if  $M - n_1 < 20$ ). The option that satisfies this condition is (b), as if  $M > 20$  and  $n_1 = 1$ , then  $M - n_1 > 20$ , and hence  $n_2 - n_1 = 20$ .
94. FORWARD, 5; BACKWARD, 4, would effectively mean a FORWARD 1 i.e.  $n_2 - n_1 = 1$  (if  $M - n_1 \geq 5$ ) or  $n_2 = M - 4$  (if  $M - n_1 < 5$ ). The option that satisfies this condition is (c).
- 95 to 96 :

95. Let us work by the rule of elimination. Option (a) cannot be true as there are many routes that satisfy the given condition. Option (c) is also not true as we can have a route starting from D (eg. DEBDCBAC). The route need not necessarily end at E, which is apparent from the eg. Given. Hence the correction option is (b).
96. City A is connected by 2 roads, B by 4 roads, C by 3 roads, D by 3 roads and E by 2 roads. For a city to be starting city for such a route, it has to be connected by odd number of roads. Hence the required answer is 2 viz. C and D.
97.  $(x + y + z)^2 = x^2 + y^2 + z^2 + 2(xy + yz + xz) = x^2 + y^2 + z^2 + 2 \times 0 = x^2 + y^2 + z^2$ .
98. Let 'p' people be born everyday. Since February 29 comes once in 4 years. In 20<sup>th</sup> century there were 25 leap years, hence number of people born on 29<sup>th</sup> February = 25p. Total number of people born in the century =  $(25 \times 366 \times p) + (75 \times 365 \times p) = 36525p$ . Therefore percentage of people born on 29<sup>th</sup> February =  $25/36525 \times 100 = 0.0684$ .  
HINT : KITS students please note that this could well be solved by taking 1 set of leap year as well. In other words, in a 4 year period number of people born =  $(3 \times 365 \times p) + 366p = 1461p$  and number of people born on 29<sup>th</sup> February in this 4 year period = p. Hence required percentage =  $1/1461 \times 100 = 0.0684$ . Thus the period has no significance in this problem.
99. Options (b) and (d) can be eliminated as the difference in the number of books here is 1. i.e. 12, 13 and 5, 6 respectively. That leaves us with options (a) and (c). Among these we can quickly verify by multiplying only the last digits. Eg. For option (a) the last digit of the total cost should be  $(5 \times 7) + (8 \times 9) + (7 \times 3) = 5 + 2 + 1 = 8$ . Which is not what we are looking for as our total cost is Rs.620 (with last digit = 0). But option (c) does satisfy this as  $(5 \times 7) + (0 \times 9) + (5 \times 3) = 5 + 0 + 5 = 0$  (as last digit).
100. Since the total cost is a multiple of 10, the addition of the cost of each type of card should also be a multiple of 10. Now if he buys 5 cards at Rs.5, he will totally pay Rs.25. Since the total cost of Rs.2 card will always be a multiple of 10 (irrespective of whether he buys 5 or 10), the only way total cost can be a multiple of 10 is if the cost of Rs.4.50 cards and that of Rs.3.50 card ends in 5 (eg. 35, 45 etc.). But this will never be possible as either both of them have to be bought 10 in number or 1 of them has to be 5 and the other one 10. In the first case we will have their cost as  $35 + 45 = 70$  and in the latter case we will have 50 paise at the end. This means that the only way in which the total cost could be a multiple of 10 is if we buy 10 each of Rs.2 and Rs.5 and 5 each of Rs.3.50 and Rs.4.50. This will make the total cost =  $50 + 20 + 17.50 + 22.50 = 110$  rs. Hence he gave 11 notes to the shopkeeper.
- 101 to 104 :
101. The lowest percentage difference in the excise duty rates is between AP and Maharashtra and the difference is  $(60 - 52)/60 = 20\%$ .
102. We have been given the total value in the graph, but nothing is mentioned about the amount of liquor manufactured by states other than TN..
103. Since Excise duty is levied on the total value of liquor produced by the 5 distilleries, this will be in the same order as the order of the amount of the liquor produced by them (as the excise duty rate remains constant). Hence the correct order is DCEBA.
104. The simple average annual growth for the 5 distilleries in TN is as shown :

Distillery	Calculation	Rate
A	$(12.89 - 6.41)/(6.41 \times 2)$	50.54%
B	$(12.07 - 3.15)/(3.15 \times 2)$	141.58%
C	$(11.92 - 1.64)/(1.64 \times 2)$	313.41%
D	$(5.79 - 1.05)/(1.05 \times 2)$	225.71%
E	$(4.21 - 2.45)/(2.45 \times 2)$	35.91%

So the distillery with highest growth rate is C and with lowest growth rate is E. So had the amount of liquor manufactured by E grown by 313.41% in the 2 year period i.e. grown by 616.82% overall its supply in 1998 would be  $(2.45 \times 616.82/100) = 15.11$  liters.



- 105 – 107 : The best way to solve these types of questions is the method of assumptions. For eg. The 3 statements are :
- Saira has a ball.  
Mumtaz does not have the ball.  
Zeenat does not have the pen.
- Let us assume that statement (I) is true. So other 2 are false. In other words it implies that both Saira and Mumtaz have the ball. This is not possible.
- Let us now assume that statement (II) is true. Which means that Statements (I) and (III) are false. Hence, Saira and Mumtaz does not the ball but even Zeenat does not have the ball as she has the pen. So even this is contradictory.
- Hence the only possibility exists is Statement (III) is true and (I) and (II) are false. This implies that Mumtaz has the ball, Zeenat has the pencil and Saira has the pen.
106. The equations can be expressed as :
- $$J < T$$
- $$J + T = A + D$$
- $$A + T < D + J$$
- Comparing (i) and (iii), we can see that  $D > A$ .
- If we rearrange the statement (ii) we get :  $(T - J) < (D - A)$ . In other words the difference between J and T is less than that between D and A. Using this relationship and using the statement (ii) we can say that the right order is  $D > T > J > A$ . Hence the answer is (b).
107. This can best be done by the method of elimination. As Bhanu's total was less than Akila's, Bhanu cannot be the winner. As Ela's and Divya's marks are the same, none of them could be winners. The winner could hence be either Bhanu or Charulata. Now, Akhila got 13 in Coherence. Even if she gets 19 in all of the remaining (as no one got 20 in any 1 head), her total would only be 89. But the winner's total is 90. So Charulata is the winner.
- 108 – 110:
108.  $(100.5 + 67 + 141 + 143.9 + 65)/5 = 103.48$
109. The key here is figuring out that the only performance which is less than the 1985 performance is the 1988 performance. Hence the percentage corresponding to 1988 should be less than 100. Thus we see that (c) cannot be the answer. Also (b) cannot be the answer as it shows two of the years having less than 100%. Between options (a) and (d), the correct answer is (a), This is so because the difference between the 1985 and 1988 performance is only 2 units on 67 units. Hence percentage wise it has to be 97% and not 68%.
110. The highest percentage decline over the previous year is seen for the year 1988, as in this year the performance almost halved. In other year you find this happening.
- 111 – 116:
111. The estimated total expenditure =  $52.1 + 267.5 + 196.4 + 209.5 = 725.5$  lakhs.  
If it has to be kept within 700 lakhs, the expenditures have to be cut by 25.5 lakhs. In other words, in each year the expenditure on expenditure will be cut by  $(25.5/4) = 6.375$  lakhs.  
Hence, percentage cut for 1989 would be  $= 6.375/15 = 42.5\%$
112. The estimated costs of material and labour for different years are :
- $$1988 = 2.1$$
- $$1989 = 95 + 70 + 15 + 25 + 25 = 230$$
- $$1990 = 80 + 45 + 12 + 18 + 20 = 175$$
- $$1991 = 75 + 60 + 16 + 21 + 18 = 190$$
- The proportion of these expenditures till 1990 =  $(2.1 + 230 + 175) / (2.1 + 230 + 175 + 190) = 0.6817$ . This will hence also be the fraction of the total length of the line.
113. Total material cost for all years =  $(95 + 80 + 75 + 70 + 45 + 60 + 15 + 12 + 16 + 25 + 18 + 21) = 532$   
Total labour cost for all years =  $(2.1 + 25 + 20 + 18) = 65.1$   
Hence ratio =  $532 : 65.1 = 8 : 1$  (approximately)
114. In the given table we can see that the costs that can be taken under the head "Materials" are : Cement, steel, Bricks and Other building materials.  
The estimated cost of of these heads in 1990 =  $80 + 45 + 12 + 18 = 155$   
The estimated cost of these heads in 1991 =  $75 + 60 + 16 + 21 = 172$   
Since the cost of material rises by 5%, it would rise by  $0.05 \times (155 + 172) = \text{Rs. } 16.35$  lakhs.
115. It is said that till 1990, amount spent = Rs. 725.5 lakhs  
Expenditure for 1991 remains as estimated = 209.5 lakhs.  
Hence the increase in expenditure will be  $209.5$  on  $725.5 = 28.87\%$ .

116. Total estimate = Rs. 725.5 lakh;

Estimate of contingencies =  $(1 + 15 + 4.2 + 5) = \text{Rs.}25.2$  lakh.

Now as the estimate of contingencies is doubled, it increases by Rs.25.2 lakhs.

And hence the percentage increase in the total estimate is  $(25.2/725.5) \times 100 = 3.47\%$

Q117-121:

117. From table 3 it can be seen that the highest percentage of sales to stock is 74% for the Region 4 and colour Brown.

118. From Table 4 it can be seen that in region 1, the maximum percentage of saris were sold of Brown colour viz.22% and hence this is the most popular colour in this region.

119. This can be answered from the fifth table. It can be seen that Region 1 has sold the maximum percentage of magenta saris out of its total magenta saris sold (viz.44%)

120. This can be answered from the fourth table. It can be seen that Region 6 has sold the least percentage of green saris out of its total sale (viz.14%)

121. This can be answered from the fifth table. It can be seen that the percentage of blue saris sold is maximum for Region 2 viz. (33%)

122-125:

122.

Year	Consumption of chemical fertilizers	Gross cropped area	Ratio
84-85	$(3.68+1.21+0.62) = 5.51$	173.1	0.0318
85-86	$(4.07+1.32+0.67) = 6.60$	177	0.0372
86-87	$(4.22+1.44+0.73) = 6.39$	172.6	0.0370
87-88	$(5.20+1.73+0.78) = 7.71$	180.4	0.0427

Hence the ratio is lowest for 84-85.

123. I can be seen that in the year 88-89, area cropped shows a decline for 3 of the crops viz.wheat, jowar and bajra.

This is the maximum number of crops for any year.

124. The amount area brought under irrigation for Major and Medium in 86-87 =  $(24 - 23.2) = 0.8$

The amount area brought under irrigation for Minor in 86-87 =  $(34.2 - 32.77) = 1.43$

Hence total area brought under irrigation in 86-87 =  $0.8+1.43 = 2.23$  million hectares

125. It can be seen that only in the year 1987-88, the area under minor irrigated area has decreased (from 34.2 to 34).

Hence it is obvious that this area should have been transferred to major and medium irrigated areas.

126. Psychoanalysis has been referred to a curative system for mental healing.
127. Behaviorism bid for approval by reducing adjustment to a program of conditioning while psychoanalysis analysed mental factors.
128. The passage states that psychoanalysis created for itself a considerable following among those content with traditional methods and attitudes.
129. Create a belief in the theory and facts will create themselves.
130. Psychoanalysts believe that practice is entirely a derivative of theory.
131. Freudian psychoanalysis was neglected by academic psychology because orthodox psychology largely ignored dreams, lapses and neuroses.
132. The mission of psychoanalysis has been described as humanistic and one that was the most novel and releasing of the curative systems that mark the history of mental healing.
133. The psychoanalytical movement became popular due to its exploration of intimate problems of human relations.
134. Computers produce by accident sequences of words that e recognize as poetry.
135. Both can be organized to solve problems and both have a similar mose of communication.
136. The comparison between the two depends upon what the two can do.
137. The author says that there is no sharp break of continuity between what is human and what is mechanical.
138. The author implies that computers are not yet capable of producing poetry.
139. The mode of communication is very similar in both.
140. The author states that in future due to mechanization there would be many unemployed people.
141. Socialism at present does not think of the possibility of unemployment in the wake of mechanization.
142. A revolt against the conception of a worker as a commodity led to the labour movement.
143. The main purpose of competitive enterprise is to realize a profit.
144. In the given context we should think of limiting the amount of leisure to that which can be profitably used.
145. In the given activities the external compulsion is minimum and the they have an element of pleasure and initiative.
146. There are forms of work like that of an artist or a scientist where external compulsion is reduced to the minimum and which can thus be hardly differentiated from occupation.
147. Occupation absorbs time and energy so long as we choose to give them.
148. Work implies necessity and contributes to one's subsistence in particular while an occupation is an en in itself.
149. The articulate minority refers to the educated and intelligent class.
150. The passage states that democracy gives more minorities more scope to have their own way than any other system.
151. We have come to appreciate the virtues of democracy through experience.
152. The author states that the lesson about the scope offered by democracy to minorities could have been derived by an analysis of the concept of democracy.
153. The author seems to talk about the virtues of democracy.
154. Democracies of the world are closer to being ruled by an intelligent, educated minorities.
155. The author thinks it is the duty of science to study the means by which we can adapt ourselves to the new world.
156. The examples of these scientists have been given to show that scientists have always been associated with war.
157. The author says that it is the labour of scientists that has led to all these dangers so scientists have to work to save mankind from this madness.
158. Till now the scientists felt loyalty to their own state was paramount. But now the loyalty to human race should replace it.
159. The example has been used to prove how scientists felt that loyalty to their states, to whatever ends it led to, was paramount.
160. The passage states that scientists have always been associated with war and always have been respected.
161. The passage states that it is part of the duty of men of science to see that important knowledge is widely disseminated and is not falsified in the interests of this or that propaganda.
162. Only an adequate progress in human sciences can overcome evils that have resulted from the knowledge of physical world.
163. Science is in its very nature a liberator, a liberator of bondage to physical nature and, in time to come a liberator from the weight of destructive passion.
164. The whole argument is based on the fact that we are planning our development with a purpose in mind. If development cannot be planned, the argument is weakened.
165. The statement that our economic development is inspired by social justice implies both the assumptions.
166. The argument suggests that our economic development will lead to better standard of living and it will in turn bring social justice.
167. The reasons given for taking interest in hydro electric projects are that oil prices are increasing and that renewable sources should be tapped.
168. If it is costlier than such projects will not help in the face of rising oil prices.
169. The statement suggests that without music, dance or art one cannot be fully alive, hence there can be no civilization.
170. If art has no relation with civilization the whole argument is nullified.
171. The statement considers being vibrantly alive as being a necessary condition for being civilized.

- 172. If two parties limit the choice of the voters, we cannot have a true democracy.
- 173. If politics were also played like any other game then two parties would be enough to play that game.
- 174. The author states that democracy would be possible with just two parties if it were a game like cricket, thus assuming that cricket is played by two parties, or teams.

