



IPM-AT IIM Rohtak

Mock Questions



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IPM-AT IIM ROHTAK MOCK QUESTIONS

SECTION 01: QUANTITATIVE ABILITY

- In how many arrangements of the word TRANSMISSION do no two S's come together?
(a) $3 \times 10!$ (b) $\frac{9}{2} \times 10!$ (c) $\frac{10 \times 11!}{2! \cdot 2!}$ (d) $\frac{21 \times 10!}{2! \cdot 2!}$
- A cuboid of size 5.2 m × 13 m × 39 m is completely cut into n small identical cubes. If n has the minimum possible value, what is the total surface area of all the small cubes?
(a) 6,164 m² (b) 30,452 m² (c) 6,760 m² (d) 6,084 m²
- Each of the series $S_1 = 2 + 4 + 6 + 8 + \dots$ and $S_2 = 3 + 6 + 9 + 12 + 15 \dots$ are continued to 100 terms. Find how many terms are identical in both the series?
(a) 32 (b) 33 (c) 34 (d) 31
- An airgun can take a maximum of 4 shots at a balloon at some distance. The probabilities of hitting the balloon at the first, second, third and fourth shot are 0.1, 0.2, 0.3 and 0.4 respectively. What is the probability that the balloon is hit?
(a) 0.6976 (b) 0.6576 (c) 0.786 (d) None of these
- How many numbers can be formed by using 8, 7, 5, 3, 2 such that they are divisible by 125? Digits to be used exactly once.
(a) 20 (b) 4 (c) 2 (d) 1
- In a particular country the value of diamond is directly proportional to the surface area (exposed) of the diamond. Four thieves steal a cubical diamond piece and then divide equally in four parts. What is the maximum percentage increase in the value of diamond after cutting it?
(a) 50% (b) 66.66% (c) 100% (d) None of these
- A triangular sheet of paper has vertices, A, B and C. It is folded such that the vertex A superimposes upon vertex B. Now, it is again folded such that vertex C superimposes upon vertex B. If AB = 6, BC = 8 and AC = 10, what is the area of the figure formed after this fold operation is performed (cm²)?
(a) 24 (b) 12 (c) 6 (d) 3
- One angle of a pentagon is 140°. If the remaining angles are in the ratio 1 : 2 : 3 : 4. The size of the greatest angle is
(a) 150° (b) 180° (c) 160° (d) 170°
- The radius of the incircle of a Δ is 4 cm and the segments into which one side is divided by the point of contact are 6 cm and 8 cm, then the length of the shortest side of the Δ is:
(a) 12 cm (b) 15 cm (c) 13 cm (d) 14 cm
- The minimum value of $f(x) = |10 - x| + |x - 2| - |4 - x|$ is attained at $x = ?$
(a) 2 (b) 4 (c) 8 (d) 10
- The remainder when 9^{84} is divided by 12 is:
(a) 0 (b) 1 (c) 3 (d) 9
- A boat takes 5 hours more while going back in upstream than in downstream. If the distance between two places is 24 km and the speed of boat in still water be 5.5 kmph. What must be the speed of boat in still water so that it can row downstream, 24 km in 4 hours?
(a) 1.5 kmph (b) 3.5 kmph (c) 4.5 kmph (d) 3 kmph
- A manufacturer undertakes to supply 2000 pieces of a particular component at Rs.25 per piece. According to his estimates, even if 5% fail to pass the quality tests, then he will make a profit of 25%. However, as it turned out, 50% of the components were rejected. What is the loss to the manufacturer?
(a) Rs.12000 (b) Rs.13000 (c) Rs.14000 (d) Rs.15000

14. The value of fixed asset depreciates at the rate of 10% of the value at the beginning of each year. If the value of the asset, two years ago, was Rs 12,000 more than the value of the asset one year ago, then find the present value of the asset, given that the asset was bought two years ago.

- (a) Rs.14520 (b) Rs.96000 (c) Rs.97200 (d) Rs.17520

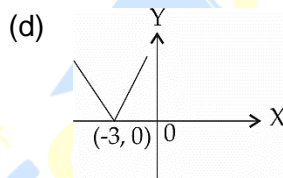
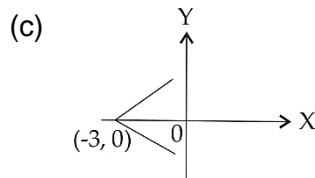
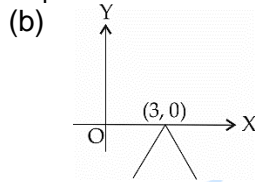
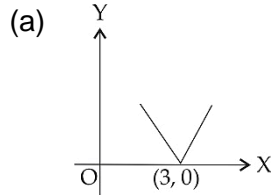
15. 20 litres of milk when added to a 60 litre milk and water solution increases the concentration by same percentage points as decreased by addition of 30 litres of water to the same solution. What is the ratio of milk and water initially?

- (a) 1 : 2 (b) 2 : 1 (c) 3 : 4 (d) 4 : 5

16. The last digit of the expression $4 \times 9^2 \times 4^3 \times 9^4 \times 4^5 \times 9^6 \times \dots \times 4^{99} \times 9^{100}$ is

- (a) 4 (b) 6 (c) 9 (d) 1

17. Which of the following is the graph of $y = |x - 3|$?



18. The number of common Points of $3x + 4y - 7 = 0$ and $x^2 + y^2 - 4 = 0$ is?

- (a) 1 (b) 2 (c) 0 (d) Can't be determined.

19. If $\log_{10} [1 - \{1 - (1 - x^2)^{-1}\}^{-1}]^{1/2} = 1$, then which of the following is the value of x?

- (a) 1 (b) 2 (c) 10 (d) 0

20. There are N questions in an exam. For $i = 1, 2, \dots, N$, there are 2^{N-i} students who answered i or more questions wrongly. The total number of wrong answers is 8191. Find N.

- (a) 12 (b) 11 (c) 10 (d) 13

21. A statements p is given below. Which statement about p is true?

P: If $a < b$, then $ac < bc$.

- (a) P is true when $c < 0$. (b) P is always false.
(c) P is false when $c < 0$. (d) None of these.

22. $\tan \pi/20 \tan 3\pi/20 \tan 5\pi/20 \tan 7\pi/20 \tan 9\pi/20 = ?$

- (a) -1 (b) 1 (c) $1/2$ (d) ∞

23. A straight line passing through the point (3, -4) and having intercepts, which are equal but of opposite signs is?

- (a) $x - y = 7$. (b) $x + y = 7$. (c) $x - y = -1$. (d) $x - y = -7$.

24. In a school, 70% of the students are boys and the rest are girls. Further 20% of the boys and 30% of the girls are getting a fee waiver. If this number is 230, find the total number of students getting 33% concession if it is a rule that 40% of those not getting a fee waiver are eligible to get one third fee concession?

- (a) 170 (b) 308 (c) 210 (d) 240

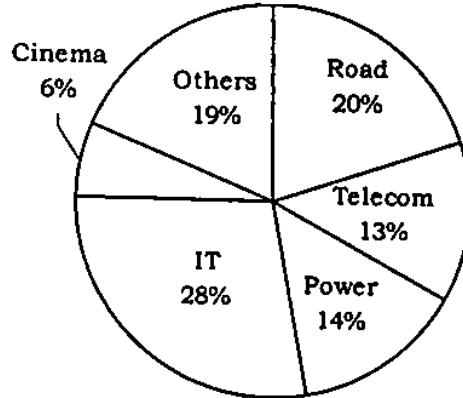
25. Forty percent of the employees of a certain company are men, and 75 percent of the men earn more than ₹ 25,000 per year. If 45 percent of the company's employees earn more than ₹ 25,000 per year, what fraction of the women employed by the company earn, ₹ 25,000 per year or less?
(a) $\frac{2}{11}$ (b) $\frac{1}{4}$ (c) $\frac{1}{3}$ (d) $\frac{3}{4}$
26. R Takes three times as much time as P takes to complete a certain work and twice as much time as Q takes to complete the same work. If P, Q, and R can together complete the work in 10 days, how much time (in days) would each of them individually take to complete the work?
(a) 40, 60, 120 (b) 60, 90, 180
(c) 20, 30, 60 (d) 30, 45, 90
27. P is a 400-digit positive integer.
Q is the number formed by reversing the digits of P.
Consider the following statements:
I: The difference of P and Q is divisible by 11.
II: The difference of P and Q is divisible by 9.
Which of the following can be concluded?
(a) Only I is true
(b) Only II is true
(c) Both I and II are true
(d) Neither I nor II is true
28. In triangle PQR, $\angle P = 120^\circ$, $\angle Q = 15^\circ$ and $QR = 2(\sqrt{3} - 1)$. Find the area of triangle PQR (assume $\sin 15^\circ = \frac{\sqrt{3}-1}{2\sqrt{2}}$)
(a) $\frac{\sqrt{2}}{3}(6\sqrt{3} - 10)$ (b) $\frac{2}{\sqrt{3}}(6\sqrt{3} - 10)$
(c) $\frac{\sqrt{2}}{\sqrt{3}}(6\sqrt{3} - 10)$ (d) $\frac{6\sqrt{3}-10}{\sqrt{3}}$
29. A solid cylinder of radius 5 cm and height 11.25 cm is melted and recast into a hemisphere. Find the radius of the hemisphere.
(a) 7.5 cm (b) 8 cm (c) 8.5 cm (d) 9 cm
30. If $x^2 - cx + c^2 - 6c + 12 = 0$ has real roots, then c can take _____ value(s).
(a) 0 (b) 1 (c) 2 (d) More than 2
31. The harmonic mean of the roots of a quadratic equation $ax^2 + bx + c = 0$ is $\frac{14\sqrt{3}+30}{5+7\sqrt{5}}$. Find $\frac{b}{c}$
(a) $\frac{5+7\sqrt{5}}{-7\sqrt{3}-15}$ (b) $\frac{-7\sqrt{3}-15}{5+7\sqrt{5}}$ (c) $\frac{5+7\sqrt{5}}{2(-7\sqrt{3}-15)}$ (d) $\frac{-7\sqrt{3}-15}{2(5+7\sqrt{5})}$
32. The radius of the circle circumscribing the triangle whose vertices are (0, 0), (5, $5\sqrt{3}$) (10, 0) is _____.
(a) $\frac{10}{\sqrt{3}}$ (b) $\frac{5}{\sqrt{3}}$ (c) $\frac{2}{2\sqrt{3}}$ (d) $\frac{15}{4\sqrt{3}}$
33. An amount of Rs. 22,781 is due for repayment, after two years, at 9% p.a., compound interest. If it is repaid in two equal annual instalments (the first one being paid now), what is the value of each instalment (in Rs.)?
(a) 10,000 (b) 11,390.50 (c) 11,000 (d) 10,500
34. Find the approximate area of a cyclic quadrilateral whose sides are 13 cm, 17 cm, 23 cm and 21 cm.
(a) 292 cm^2 (b) 392 cm^2 (c) 356 cm^2 (d) 328 cm^2
35. The equation of the line passing through the point of intersection of the lines $x + 2y - 3 = 0$ and $3x - y - 2 = 0$ and parallel to the line $2x - y + 7 = 0$ is
(a) $2x - y + 2 = 0$ (b) $x + y = 2$
(c) $2x - y - 1 = 0$ (d) $x - y = 0$

Directions (Q.36-Q.40): Study the following graph and table and answer accordingly:

The following table shows the FDI in Indian states during the year 2011-12

States →	UP	Maharashtra	Karnataka	Kerela	Delhi	MP	AP
FDI(in Rs.cr)	490	590	660	560	410	510	684

The following graph shows the investment in different sectors



36. In which of the following pairs of states the ratio of investment in power sector is 7: 8?
 (a) UP, Maharastra (b) Delhi, Maharashtra
 (c) Delhi, UP (d) UP, Kerela
37. What is the ratio between the investment in AP in IT and Others in UP?
 (a) 35:74 (b) 12:17 (c) 72:35 (d) 17: 12
38. The total investment in Road sector by these states is
 (a) Rs.780.80cr (b) Rs.768.40cr (c) Rs.689.80cr (d) Rs.780cr
39. The FDI in Cinema sector in Delhi is what per cent less than that in Kerala in Others?
 (a) 80% (b) 70% (c) 65% (d) 77%
40. FDI in Maharashtra in Telecom sector is what per cent of that in AP in IT sector?
 (a) 35% (b) 40% (c) 30% (d) 45%

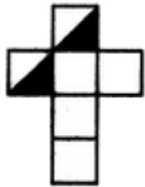
SECTION 02: LOGICAL REASONING

41. If in a certain code language 'PERFECT' is written as '116', then how will 'SUPERGRADS' be written in that code?
(a) 142 (b) 120 (c) 113 (d) 117

Directions (Q.42 and Q.43): Each question is followed by two statements, A and B. Answer each question using the following instructions.

- (a) If the question can be answered by using statement A alone but not by using B alone.
(b) If the question can be answered by using statement B alone but not by using A alone.
(c) If the question can be answered by using either statement alone.
(d) If the question can be answered by using both the statements together.
42. Four friends, P, Q, R and S got the top four ranks in a competitive examination, but P did not get the first, Q did not get the second, R did not get the third, and S did not get the fourth rank. Who secured which rank?
A. Neither P nor S were among the first two.
B. Neither Q nor R was third or fourth.
43. In a cricket match the 'man of the match' award is given to the player scoring the highest number of runs. In case of tie, the player (out of those locked in the tie) who has taken the higher number of catches is chosen. Even thereafter if there is a tie, the player (out of those locked in the tie) who has dropped fewer catches is selected. Amar, Akbar and Antony who were contenders for the award dropped at least one catch each. Akbar dropped 2 catches more than Amar did, scored 50, and took 2 catches. Antony got two chances to catch and dropped both. Who was the 'man of the match'?
A. Antony made 15 runs less than both Amar and Akbar.
B. The catches dropped by Akbar are 1 more than the catches taken by Amar.

44. Choose the box that is similar to the box formed from the given sheet of paper (X).



(X)



(1)



(2)



(3)



(4)

- (a) 1 and 4 only (b) 3 and 4 only (c) 1 and 2 only (d) 2 and 3 only

SPACE FOR ROUGH WORK

Directions (Q.45 and Q.46): In each question below, there are three statements followed by conclusions. You have to take the given statements to be true even if they seem to be at variance with commonly none facts and then decide which of the given conclusion logically follow(s) from the given statements.

45. Statements: a. All bricks are flowers.
b. Some houses are flowers.
c. All pens are houses.
Conclusions: I. Some houses are bricks.
II. Some pens are flowers.
III. Some flowers are bricks.
IV. No pen is flower.
(a) Only either II or IV and III follow
(b) Only either II or IV and I follow
(c) None follows
(d) All follow
46. Statements: a. No house is a school.
b. All colleges are schools.
c. All schools are teachers.
Conclusions: I. No house is a teacher.
II. All colleges are teachers.
III. Some teachers are not houses.
IV. No college is a house.
(a) Only either I or IV follows
(b) Only II, III and IV follow
(c) Only either I or IV and III follow
(d) None follows
47. Deepak said to Nitin, "That boy playing with the football is the younger of the two brothers of the daughter of my father's wife". How is the boy playing football related to Deepak?
(a) Son (b) Brother (c) Cousin (d) Brother-in-law

Directions (Q.48 and Q.49): In each questions, a pair of words is given, followed by four pairs of words as alternatives. The candidate is required to choose the pair in which the words bear the sane relationship to each other as the words of the given pair bear.

48. Numismatist : Coins
(a) Philatelist : Stamps (b) Jeweler : Jewels
(c) Cartographer : Maps (d) Geneticist : Chromosomes
49. Agenda : Meeting
(a) Programme : Function (b) Performance : Ticket
(c) Map : Scale (d) Footnote : Article

SPACE FOR ROUGH WORK

50. In which of the following expressions will the expressions 'H ≤ F' as well as 'J > H' be definitely true?
- (a) $F > G > H \geq I = J$ (b) $F < G \leq H < I < J$
(c) $F \geq G = H \leq I < J$ (d) $F = G > H > I = J$

Directions (Q.51): In the question, relationship between different elements is shown in the statements. These statements are followed by two conclusions.

Give answer

- (a) If only conclusion I follows.
(b) If only conclusion II follows.
(c) If either conclusion I or II follows.
(d) If both conclusions I and II follow.
51. Statement: $T < P \leq U$; $L > U \leq K$; $P \geq R$
Conclusions: I. $K \geq R$
II. $R < L$
52. Out of the five car manufacturing companies A, B, C, D and E, the production of company B is more than that of company A but not more than that of company E. Production of company C is more than the production of company B but not as much as the production of company D. Considering the information to be true, which of the following is definitely true?
- (a) Production of company D is highest of all the five companies.
(b) Company C produces more number of cars than Company E.
(c) The numbers of cars manufactured by companies E and C are equal.
(d) Company A produces the lowest number of cars.

Directions (Q.53 – Q.56): Study the following information carefully and answer the given questions. There are eight family members, viz A, B, C, D, E, F, G and H are sitting around a circular table, facing the center but not necessarily in the same order. The following information is known about them.

- (i) F, the wife of D, is sitting third to the right of C.
(ii) A is the son of H. A is sitting second to the left of D. D is an immediate neighbour of neither F nor C. No male is an immediate neighbour of D.
(iii) G sits second to the left of D's son. Only two persons sit between H and A's brother. Neither C nor D is the brother A.
(iv) D's son and the wife of D's son are immediate neighbours of each other.
(v) F is the mother of H and is an immediate neighbour of neither B nor G.
(vi) G is the sister of E.
53. Who is sister in law of H?
(a) C (b) G (c) F (d) E
54. Who among following sits third to left of C?
(a) D (b) H (c) A (d) F

SPACE FOR ROUGH WORK

55. Who among following is wife of B?
(a) C (b) F (c) G (d) H
56. Who among following sits third to right of daughter of F?
(a) E (b) B (c) H (d) C
57. Which of the answer figures is exactly mirror image of given figure?

Question Figures:

654

Answer Figures:

997 456 456 654

(1) (2) (3) (4)

Directions (Q.58 – Q.60): Study the information and answer the given questions:

Eight employees A, B, C, D, E, F, G and H will have to take the leave in the months of January, March, July and November but not necessarily in the same order. In each month, they all will take a leave on either 8th or 19th of the given month. Not more than two employees will take a leave on the same month. Only one employee will take a leave on each day. Only one person will take a leave before the G. More than three persons will take a leave between G and A. Only one person will take a leave between A and H. Two persons will take a leave between H and B. Only one person will take a leave between B and F. Two persons will take a leave between F and C. D will take a leave one of the days after E. Neither D nor E will take a leave on 19th of the any of the given month.

58. Who among following will take a leave on 8th November?
(a) A (b) C (c) G (d) D
59. H will take a leave on which date and month?
(a) 8th March (b) 19th July (c) 8th July (d) 19th March
60. Who among following will take a leave on March month?
(a) B, C (b) F, B (c) G, H (d) A, C
61. Do as directed.
Statement: "Very few dollars are there in my pocket"
If the above statement is definitely true, which of the following is false?
(a) I have zero dollars in my pocket.
(b) I should have at least some dollars in pocket.
(c) I can have 100 dollars in my pocket.
(d) Cannot be determined.

SPACE FOR ROUGH WORK

Directions (Q.62 and Q.63): Each of the questions below consists of a questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and give answer

- (a) if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.
- (b) if the date either in statement I alone or in statement II alone are sufficient to answer the question.
- (c) if the data even in both statements I and II together are not sufficient to answer the question.
- (d) if the data in both statements I and II together are necessary to answer the question.

62. Are all the five friends viz. Leena, Amit, Arun, Ali and Ken who are seated around a circular table facing the centre?

- I. Leena sits second to left of Amit. Amit faces the centre. Arun sits second to right of Leena.
- II. Ali sits third to the left of Ken. Ken faces the centre. Amit sits to the immediate left of Ali but Ken is not an immediate neighbour of Amit.

63. Is T grandmother of Q?

- I. P is the mother of Q. Q is the son of R. R is the son of T.
- II. L is father of N and N is daughter of T.

Directions (Q.64 and Q.65): Find out the number that would replace the question mark (?) in each of the following questions.

64. 3, 14, 39, 84, 155, ?

- (a) 258
- (b) 316
- (c) 415
- (d) 324

65. 6, 15, 35, 77, 143, _?

- (a) 283
- (b) 292
- (c) 221
- (d) 305

66. A clock is set right at 6 am. The clock losses 16 min in 24 h. what will be true time, if the clock indicates 11 pm on 4th day?

- (a) 12 o'clock
- (b) 11 pm
- (c) 9 PM
- (d) 2 pm

67. Find out the wrong term in the following series:

6 18 50 149 446

- (a) 6
- (b) 18
- (c) 50
- (d) 149

68. In a certain code, TEAMWORK is written as NBFUJQNV and SOME is written as PTDL. How is PERSON written in that code?

- (a) QDOOPT
- (b) QDOMNR
- (c) SFQMNR
- (d) SFQOPT

69. If the animals which can walk are called swimmers, animals who crawl are called flying, those living in water are called snakes and those which fly in the sky are called hunters, then what will a lizard be called?

- (a) Swimmers
- (b) Snakes
- (c) Flying
- (d) Hunters

SPACE FOR ROUGH WORK

Directions (Q.70): A statement followed by three assumptions numbered I, II and III are given. An assumption is something supposed or taken for granted. You have to consider the statement and the following assumptions and decide which of the assumptions is implicit in the statement, then decide which of the answers (a), (b), (c) or (d) is correct.

70. **Statement:** Considering the tickets sold during the last seven days, the circus authorities decided to continue the show for another fortnight which includes two weekends.

Assumptions:

- I. People may not turn up on week days.
- II. The average number of people who will be visiting circus will be more or less same as that of the last seven days.
- III. There may not be enough response at other places.

(a) Only I is implicit (b) Only II is implicit (c) I and II are implicit (d) All are implicit

Directions (Q.71): In the question below is given a statement followed by two assumptions. On the basis of the information given in the statement, you have to assume everything in the statement to be true then decide which of the suggested courses of actions is worth pursuing.

71. **Statement:** Technology has not only bridged gaps but has also created new ones.

Assumptions:

- I. Life without modern technology was much better.
- II. Technology should be used strictly on a limited basis.

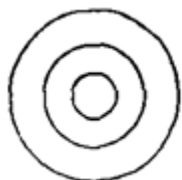
(a) Only I is implicit (b) Only II is implicit (c) I and II are implicit (d) All are implicit

72. Pratham travels 10 metres in North direction, he turns right and travels 20 metres. Again, he turns towards right and travels 25 metres. Then, he turns towards left and travels 15 metres. In which direction and how far is Pratham from his original position?

- (a) 35 metres, East
- (b) 38.07 metres, South-East
- (c) 25.08 metres, West
- (d) 25 metres, North-Ea

Directions (Q.73): Given below are four possible membership schemes. In each case, mark the one you feel appropriate description of the three listed items.

73. Words with no vowel, Words with at most one vowel, Words with at least two vowels



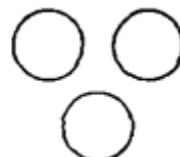
(a)



(b)



(c)



(d)

SPACE FOR ROUGH WORK

Directions (Q.74 and Q.75): In these type of questions a statement is given followed by some conclusions. The student is required to go through the statements meticulously and then decide which of the given conclusion/s follows on its basis.

74. **Statement:** Vegetable prices are soaring in the market.

Conclusions:

I. Vegetables are becoming a rare commodity.

II. People cannot eat vegetables.

(a) only conclusion I follows.

(b) only conclusion II follows.

(c) either I nor II follows.

(d) neither I nor II follows.

75. **Statement:** All the organised persons find time for rest. Sunitha, inspite of her very busy schedule, finds time for rest.

Conclusions:

I. Sunita is an organised person.

II. Sunita is an industrious person.

(a) only conclusion I follows.

(b) only conclusion II follows.

(c) either I nor II follows.

(d) both I and II follow

Directions (Q.76 - Q.78): Study the given information and answer the questions:

When a word and number arrangement machine is given an input line of words and numbers, it arranges them following a particular rule. The following is an illustration of input and its rearrangement.

Input: press 81 zone 63 high 83 our 39 simply 28

Step I: 39 press 81 zone 63 high 83 our 28 simply

Step II: 83 39 81 zone 63 high our 28 simply press

Step III: 63 83 39 81 zone high 28 simply press our

Step IV: 28 63 83 39 81 zone simply press our high

Step V: 81 28 63 83 39 simply press our high zone

Step V is the last step of the above arrangement as the intended arrangement is obtained.

As per the rules followed in the given steps find out the appropriate steps for the given input.

Input: debt 51 meau 62 loved 36 full 91 means 72

76. In which step the elements 'full 91 meau' found in the same order?

(a) Step I

(b) Step IV

(c) Step V

(d) none of these

77. In step III, '51' is related to 'full' and '91' is related to 'debt'. In the same way '62' is related to?

(a) 36

(b) loved

(c) 51

(d) full

SPACE FOR ROUGH WORK

78. Which of the following is the second step of the arrangement based on the given input?
(a) 72 36 51 62 loved full 91 means meau debt
(b) 72 36 51 62 loved 91 full means meau debt
(c) 72 36 51 62 loved full 91 meau debt means
(d) 72 36 51 62 loved full 91 means debt meau
79. Ram is half as old as Shyam, who is three times as old as Prakash. The sum of their ages is 55. How old is Ram?
(a) 5 (b) 8 (c) 10 (d) 15
80. Seven years ago Anu was A times as old as Kitu was. If Anu is now 18 years old, how old is Kitu now in terms of A (in years)?
(a) $11/A + 7$ (b) $A/11 + 7$ (c) $17 - A/7$ (d) $17/A$

SECTION 03: VERBAL ABILITY

Directions (Q.81 - Q.86): Some of the sentences are grammatically correct and some are incorrect. Find out which part of the sentence has an error and mark that part. If there is no error, mark that part as your answer.

81. I am told that Anjali has been (a)/ suffering from fever(b)/ since ten days. (c)/No error (d)
82. The armed forces have been working around the clock(a)/ to bring a semblance(b)/ of normality in the flood affected areas.(c)/ No error(d)
83. This is the second communication we have sent(a)/ and we are much surprised(b)/ at receiving no answer.(c)/ No error(d)
84. Several guests noticed Mr. Sharma(a)/ falling back in his chair (b)/and gasping for breath.(c)/ No error (d)
85. His assistants have(a)/ and are still doing(b)/ excellent work for the organization.(c)/ No error (d)
86. The ebb and flow of the tides (a)/ are (b)/ now understood (c)/ No error (d)

Directions (Q.87 - Q.91): Read the following passages carefully and choose the best answer for each of the questions that follow.

The concept of sculpture has changed so much in recent decades that most of what is currently classified as sculpture bears little resemblance to the millennia-old tradition of carved or cast figures. Practically any three-dimensional object serving a decorative, aesthetic or conceptual purpose is now viewed as sculpture. The shift occurred in the 1960s when Donald Judd argued that his planar wooden forms were not sculptures since they were neither "sculpted" nor statues. Sculpture, he proclaimed in 1965, "is finished." In the late '60s, Earth artist Michael Heizer declared that "the idea of sculpture has been destroyed, put down." But sculpture, like painting, refused to die; instead, it was redefined to include the works of the very artists who rejected it.

Two major exhibitions of Jessica Stockholder's work have recently provided the opportunity to consider these issues. A new installation, *Sam Ran Over Sand or Sand Ran Over Sam*, was created for the Rico University Art Gallery in Houston, while "Jessica Stockholder, *Kissing the Wall: Works, 1988-2003*" surveys Stockholder's portable sculptures, which she calls "studio works." The latter show debuted at the Blaffer Gallery, Art Museum of the University of Houston. Together, the two shows offered in-depth access to this prolific midcareer artist's production, which reveals surprisingly little change over the course of 16 years. Throughout, she has maintained a consistent level of energy and formal complexity.

The wall is a significant component in Stockholder's work. The freestanding pieces, begun five years after she developed her spacious installations, utilize it to support pictorial elements such as mirrors or painted and assembled backdrops. Many works are connected to the wall by wires or electrical cords, which generate an invisible but dynamic source of energy in her work. Like colour, which Stockholder uses liberally, the wall is typically an issue for painting rather than sculpture. Merging the two mediums, all the works in the exhibition, except one, were related to the wall in some fashion.

In *Kissing the Wall #5 with Yellow* (1990) a metal chair, covered with painted-over spools of thread and wool, and glued-on newspapers, conceals a light bulb mounted on a wooden panel behind it. The bulb illuminates a yellow rectangle of paper taped to the wall behind the chair. Because important aspects of each work are unavailable from a frontal vantage point, Stockholder's sculptures are in no way pictorial; they don't offer three-dimensionality compressed into a picture when seen from a single, static point of view. It does make sense, however, to describe her colourful, space-consuming sculptures as painterly. Mark di Suvero's early comment that his "sculpture is painting in three dimensions" is echoed in Stockholder's remark, quoted in the exhibition catalogue: "I didn't stop making paintings and start making sculpture. I still make paintings, only they are also sculpture."

Colour is crucial to Stockholder's work. While it often appears arbitrary (but rarely inappropriate), her palette is peculiarly her own. Her colours are high-key and opaque. Recalling darker tints of house paint (most of which are derived from a white base), the latex and acrylic colors applied to her

sculptures are especially plastic-like in hue and texture creating a paint quality that coincides with her use of brightly colored plastic objects.

87. As per the passage Stockholder's sculptures cannot be called 'pictorial' because
- they give a three-dimensional appearance
 - they give only a two-dimensional impression
 - they are not like ordinary pictures where three dimensionality is presented in a two dimension form
 - they don't give the viewer a clear cut idea of the artist's intention
88. What does 'palette' in the passage mean?
- theme
 - range of colors
 - interpretation of colors
 - the surface on which an artist paints
89. The author has dealt with the two major exhibitions of Jessica Stockholder's work elaborately because the shows
- offer an in depth access to her production
 - depict the consistent level of energy and formal complexity maintained by the artist
 - illustrate that sculpture is not finished
 - capture the idea that 'sculpture' encompasses any three dimensional object serving a decorative, aesthetic or conceptual purpose
90. According to the author, the use of wall as a component in Stockholder's work
- signifies that the wall represents an invisible but dynamic source of energy in her work
 - shows it to be a piece of painting rather than sculpture
 - stands as a testimony to the fusion of the two mediums, painting and sculpture
 - shows she meant her works to be considered as paintings primarily
91. Which among the following is NOT TRUE, according to the passage?
- stockholder makes use of only natural colours in her work
 - stockholder's work necessitates the movement of the viewer around her pieces thus ensuring their physical involvement
 - onald judd's works of art have been accepted as sculptures
 - one piece in the exhibition of stockholder's work did not make use of the wall concept

Directions (Q.92 and Q.93): The passage given below are followed by four summaries each. For each question, choose the option that best captures the essence of the paragraph.

92. To the casual observer, a caterpillar's bright coloring, fuzzy exterior and funny shape are a sight to behold. However, these same bright hues that we marvel at tell potential predators that the caterpillar is poisonous. In fact, many caterpillars defend themselves with venom that is released through the tips of fine hairs or spines on their bodies. Physical attributes aren't the only way that caterpillars defend themselves. Some caterpillars have developed the ability to make whistling or clicking noises. This group includes the walnut sphinx moth (the caterpillar of which can whistle through holes in its sides) and the hickory tussock caterpillar, which emits an ultrasonic click when threatened. Scientists were unable to understand why caterpillars whistle at first, but years of research has revealed that these noises are meant to mimic alarm sounds made by birds. The noise alerts birds to danger and prevents them from snapping up the caterpillars for a tasty treat. Some researchers say that the sounds also confuse bats.
- While some caterpillars defend themselves from predators by releasing venom, some make clicking noises or whistling sounds that scare the birds away.
 - To evade predators, caterpillars have adapted in a variety of ways and their biological defense mechanism depends on the type of predator they need to avoid.
 - Caterpillars make noises meant to mimic alarm sounds made by birds and this noise alerts birds to danger and prevents them from snapping up the caterpillars for a tasty treat.
 - Research suggests that caterpillars whistle when pecked at by birds, and they sometimes click, too, suggesting they may have more than just physical attributes to worm their way out of trouble.

93. It's one of the most familiar sights in Australia — a yellow diamond, with a black chunk sliced out in one corner. You've probably seen it on TV or online several times today and it hangs from hundreds — if not thousands — of branches. The Commonwealth Bank logo is so recognisable, these days the bank doesn't even use its full name in its advertising confident Australians will know the company by its logo alone. But the Comm Bank logo has more to it than meets the eye. At least, initially. Squirrelled away in that diamond is the Southern Cross constellation. It's one of many logos — in Australia and abroad — that offer more than they are immediately letting on.
- A surprisingly simple logo introduced by the Commonwealth Bank is a shape based on the formation of the Southern Cross constellation — each corner represents one of the five stars, with the black wedge completes the diamond shape.
 - Hidden within the well-known logo of Australia's Commonwealth Bank, which is simply a yellow diamond, with a black chunk sliced out in one corner, is the Southern Cross constellation.
 - The Commonwealth Bank needed a shape that could still include the colours yellow and black and it had to be a memorable shape in contrast to the bank's competition and a diamond breaks up the black and yellow colours.
 - The Commonwealth Bank's logo is based on the formation of the Southern Cross - constellation with the yellow section linking the 71 five stars of the Southern Cross, and the black portion completing the geometrical shape.

Directions (Q.94 - Q.97): Read the following passage carefully and answer and the questions that follow.

In the modern scientific story, light was created not once but twice. The first time was in the Big Bang when the universe began its existence as a glowing, expanding, fireball which cooled off into darkness after a few million years. The second time was hundreds of millions of years later when the cold material condensed into dense nuggets under the influence of gravity, and ignited to become the first stars.

Sir Martin Rees, Britain's astronomer royal, named the long interval between these two enlightenments the cosmic "Dark Age". The name describes not only the poorly lit conditions, but also the ignorance of astronomers about that period. Nobody knows exactly when the first stars formed or how they organised themselves into galaxies or even whether stars were the first luminous objects. They may have been preceded by quasars, which are mysterious, bright spots found at the centres of some galaxies.

Now two independent group of astronomers, one led by Robert Becker of the University of California, Davis and the other by George Djorgovski of the Caltech, claim to have peered far enough into space with their telescopes (and therefore backwards enough in time) to observe the closing days of the Dark Age.

The main problem that plagued previous efforts to study the Dark Age was not the lack of suitable telescopes but rather the lack of suitable things at which to point them. Because these events took place over 18 billion years ago, if astronomers are to have any hope of unravelling them they study objects that are at least 13 billion light years away. The best prospects are quasars, because they are so bright and compact that they can be seen across vast stretches of space. The energy source that powers a quasar is unknown although it is suspected to be the intense gravity of a giant black hole. However at the distances required for the study of Dark Age, even quasars are extremely rare and faint.

Recently some members of Dr. Seeker's team announced their discovery of the four most distant quasars known. All the new quasars are terribly faint, a challenge that both teams overcame by peering at them through one of the twin Keck telescopes in Hawaii. These are the world's largest and can therefore collect the most light. The new work by Dr. Becker's team analysed the light from all four quasars. Three of them appeared to be similar to ordinary, less distant quasars. However, the fourth and most distant, unlike any other quasar ever seen, showed unmistakable signs of being shrouded in a fog of hydrogen gas. This gas is left over material from the Big Bang that did not condense into stars or quasars. It acts like fog because new born stars and quasars emit mainly ultraviolet light, and hydrogen gas is opaque to ultraviolet. Seeing this fog had been the goal of would

be Dark Age astronomers since 1965, when James Gunn and Bruce Peterson spelled out the technique for using quasars as backlighting becomes to observe the fog's ultraviolet shadow.

The fog prolonged the period of darkness until the heat from the first stars and quasars had the chance to ionise the hydrogen (breaking it into its constituent parts, protons and electrons). Ionised hydrogen is transparent to ultraviolet radiation, so at that moment the fog lifted and the universe became the well-lit place it is today. For this reason, the end of the Dark Age is called the "Epoch of Re-ionisation". Because the ultraviolet shadow is visible only in the most distant of the four quasars, Dr. Becker's team concluded that the fog had dissipated completely by the time the universe was about 900 million years old, and one-seventh of its current size.

94. In the passage, the Dark Age refers to :
- the period when the universe became cold after the Big Bang
 - a period about which astronomers know very little
 - the medieval period when cultural activity seemed to have come to an end
 - the time that the universe took to heat up after the Big Bang
95. Astronomers find it difficult to study the Dark Age because:
- suitable telescopes are few
 - the associated events took place aeons ago
 - the energy source that powers a quasar is unknown
 - their best chance is to study quasars, which are faint objects to begin with
96. The four distant quasars discovered recently :
- could only be seen with the help of large telescopes
 - appear to be similar to other ordinary quasars
 - appear to be shrouded in a fog of hydrogen gas
 - have been sought to be discovered by Dark Age astronomers since 1965
97. The fog of hydrogen gas seen through the telescopes :
- is transparent to hydrogen radiation from stars and quasars in all states
 - was lifted after heat from stars and quasars ionised it
 - is material which eventually became stars and quasars
 - is broken into constituent elements when stars and quasars are formed

Directions: (Q.98 - Q.100): For each of the following questions, a part or the whole of the original sentence has been underlined. You have to find the best way of writing the underlined part of the sentence.

98. If you are on a three-month product development project and, in two weeks, you've put together a system that solves part of the problem, show it to your boss without delay.
- and, you've put together a system that solves part of the problem in two weeks
 - and, in two weeks, you've put together a system that solves part of the problem
 - and, you've put together a system that has solved part of the problem in two weeks
 - and, in two weeks you put together a system that solved only part of the problem
99. If you are health conscious, work on your diet plan, a balanced diet is accomplished by eating many different kinds of food.
- a balanced diet is achieved by eating many different kinds of food
 - a balancing diet is achieved by eating many different kinds of food
 - a balanced diet is accomplished with eating many different kinds of food
 - a balanced diet is accomplished with the eating of many different kinds of food
100. No one should question the relevance of computer education in the present time; computers give us an easier access to information.
- computers give us an easier access to information
 - computers give us an access to information easily
 - computers gives us easier access to information
 - computers give us easier access to information

Directions (Q.101 - Q.103): Each of the following questions has a sentence with two blanks. Given below each question are four pairs of words. Choose the pair that best completes the sentence. The first word in the pair should fill the first gap.

101. Sheer necessity has contributed to the growing demand for sales analytics. Apart from the obvious trends of growing product complexity and range, and increasingly _____ customers, the most pressing reason today in almost every industry is attrition. Sales talent is increasingly finding that their employment market is a _____ world—it is not limited by industry. As new economy industries like insurance telecom and retail attempt to grow rapidly, they target talent from more mature sectors like FMCG, pharma and consumer durables, driving up the rate of attrition everywhere.
(a) intriguing; bedfast (b) innovating; topical
(c) demanding; competitive (d) demanding; borderless
102. The rough guide to marketing success used to be that you got what you paid for. No longer. While traditional "paid" media—such as television and radio commercials, print advertisements, and roadside billboards—still play a major role, companies today can exploit many alternative forms of media. Consumers _____ of a product may, for example, create "earned" media by _____ promoting it to friends, and a company may leverage "owned" media by sending e-mail alerts about products and sales to customers registered with its Web site. In fact, the way consumers now approach the process of making purchase decisions means that marketing's impact stems from a broad range of factors beyond conventional paid media.
(a) base; involuntary (b) market; dedicated
(c) enamoured; alleviating (d) enamoured; willingly
103. Bosses matter. They matter because more than 95 per cent of all people in the workforce have bosses, are bosses, or both. They matter because they set the _____ for their followers and organizations. Bosses matter to everyone they oversee, but they matter most to those just beneath them in the pecking order: the people they guide at close range, who constantly tangle with the boss's virtues, foibles, and quirks. Whether you are the CEO of a Fortune 500 company or the head chef at a restaurant, your success depends on staying in tune with the people you interact with most frequently and intensely. All bosses matter, but those at the top matter most. Whether or not they know it, their followers monitor, magnify, and often _____ their moves.
(a) atmosphere; loath (b) tone; mimic
(c) culture; alleviate (d) texture; condone

Directions (Q.104 - Q.106): Each question below consists of a related pair of words or phrases, followed by four pairs of words or phrases labeled (a) through (d). Select the pair that best expresses the relationship similar to that expressed in the original pair.

104. Nuance : Subtle
(a) Pun : Sarcastic (b) Fit: Honest (c) Inquiry : Discreet (d) Hint: Direct
105. Arena : Conflict
(a) Mirage : Reality (b) Forum : Discussion
(c) Asylum : Pursuit (d) Utopia : Place
106. Hierarchy : Ranked
(a) Equation : Solved (b) Critique : Biased (c) Chronology : Sequential (d) Infinity : Fixed

Directions (Q.107 - Q.110) Sentences given in each question, when properly sequenced form a coherent paragraph. Each sentence is labelled with a letter. Choose the most logical order of sentences from among the four given choices to construct a coherent paragraph.

107. A. Interactions like these are the hallmark of the increasingly popular website Chat Roulette.
 B. In and of itself, the site is just a platform for live, face-to-face conversations with total strangers, with few rules and no guidelines.
 C. Click "next," and someone else is waiting.
 D. It takes anonymous online chatting (not a new thing), adds webcams and lets users have at it.
 E. You don't need a user name, a profile or a friend request to participate—there's an immediate connection to a random stream of total strangers from all around the world. Bored by what you see?
 (a) BCDEA (b) EDABC (c) ABDEC (d) BDCEA
108. A. Worse, the flaws in the polished surface of the MBA now appear to reflect flaws in the whole system of American business management, in its concepts, its techniques, its values and priorities.
 B. They are, in other words, a professional managerial caste that considers itself trained—and therefore destined—to take command of the nation's corporate life.
 C. The MBA, is both a cause and a symptom of some fundamental problems afflicting the US economy.
 D. Although the MBAs generally see themselves as the best and the brightest, and the most energetic and ambitious as, well, a growing number of corporate managers look on them as arrogant amateurs, trained only in figures and lacking experience in both the manufacture of goods and the handling of people.
 E. This might prove a misfortune of some magnitude.
 (a) BEDAC (b) DABEC (c) CDAEB (d) CEDBA
109. A. Now a second Industrial Revolution, quieter but more profound, is sweeping through US industry.
 B. Gradually, men felt themselves swallowed by a vast, impersonal machine, which rubbed away their self-respect and, in a way, their identities.
 C. In anger against betrayal of the human spirit by the Industrial Revolution, millions of workers listened to the false promises of Marx's philosophy.
 D. The Industrial Revolution, replaced the tools of the independent workmen with machines, had transformed handicraftsmen who were their own bosses into hired hands subject to the orders of managers.
 E. Its name: Human Relations in Industry.
 (a) ADEBC (b) CDAEB (c) BDCAE (d) DBCAE
110. A. The phenomenal increase in corporate collegians has sparked a high-level, academic argument.
 B. Today the management comer is more apt to find himself sent back to school with a pack of pencils and instructions to sharpen his potential.
 C. Just how much good are such training courses?
 D. Time was when a new rug on the floor or a bigger office was the infallible sign of a rising executive.
 E. The new corporate fad—or what one executive calls "a fever sweeping industry"—was started to combat the shortage of executives by trying to force-feed talent in the classroom instead of waiting for it to grow naturally in the office.
 (a) DBEAC (b) CAEDB (c) EACBD (d) None of these

Directions (Q.111 - Q.116): Select the most appropriate word from the options against each number.

Those living in the slums are ____ (111) ____ and tough because they are totally ____ (112) ____ to the vagaries and hardships of life. The rising sun ____ (113) ____ the day and the setting sun closes the day for the day for them. It is like a drama where the curtain ____ (114) ____ up in the morning and comes down in the evening. They don't ____ (115) ____ hypertension and heart attacks because there is, after all ____ (116) ____ to worry about.

- | | | | |
|---------------------|-----------------|---------------|-------------|
| 111. (a) poor | (b) sick | (c) hardy | (d) weak |
| 112. (a) dependent | (b) independent | (c) exposed | (d) tried |
| 113. (a) heralds | (b) herald | (c) bring | (d) shines |
| 114. (a) hangs | (b) hand | (c) goes | (d) shines |
| 115. (a) know | (b) form | (c) think | (d) have |
| 116. (a) everything | (b) something | (c) somewhere | (d) nothing |

Directions (Q.117 - Q.120): In the following sentences, one word or a phrase is used wrongly. Choose the word that must be changed or modified or deleted to make the sentence correct. There are sentences without any errors too.

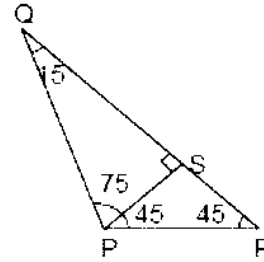
117. The committee **came to** a decision **to discuss** in detail **about** the assorted problems that people have been facing for a **long time**.
 (a) came to (b) to discuss
 (c) about (d) a long time
118. I know you must not **see eye to eye** with the philosophy of Ram Krishna but you 'must admit that It **had had** tremendous **influence over** a great many followers.
 (a) see eye to eye (b) had had
 (c) influence over (d) or
119. The Principal **inquired with** the students, if they would like their teacher **to repeat** the lesson **again**.
 (a) inquired with (b) to repeat
 (c) again (d) no error
120. One of the **security guards** rushed **forward**; unlocked the gate and asked whether I had anything **objectionable**.
 (a) security guards (b) forward
 (c) objectionable (d) no error

IPM-AT IIM ROHTAK MOCK QUESTIONS
ANSWER KEY & EXPLANATIONS

SECTION 01: MATHEMATICS

1. (a) There are 3 S's in all in the given word.
The remaining nine letters can be arranged in $\frac{9!}{2!2!}$ ways.
The three S's can be arranged in $10C_3$ ways so that no two S's come together.
∴ Required number of arrangements
 $= \frac{9!}{2!2!} \times 10C_3 = \frac{9!}{2!2!} \times \frac{10!}{3!7!} = 3 \times 10!$
2. (d) We can get small identical cubes from the cuboid, by taking each side as a common factor of the 3 dimensions. The least number of identical cubes would correspond to the HCF of the 3 dimensions.
Side of the cubes formed
 $= \text{HCF of } (5.2, 13, 39) = 2.6\text{m}$
Number of cubes formed
 $= \frac{(5.2)(13)(39)}{(2.6)(2.6)(2.6)} = 150$
∴ Surface area of each cube $= 6(2.6)^2 = 6(6.76)^2 \text{m}^2$
Total surface area of all such cubes formed is $(150)(6)(6.76) = 6084 \text{m}^2$
3. (b) is the correct answer.
4. (a) is the correct answer.
5. (b) is the correct answer.
6. (c) is the correct answer.
7. (b) **Area = 12 cm².**
8. (c) **The size of the greatest angle = 160°.**
9. (c) is the correct answer.
10. (d) is the correct answer.
11. (d) is the correct answer.
12. (b) is the correct answer.
13. (b) is the correct answer.
14. (c) is the correct answer.
15. (c) is the correct answer.
16. (b) is the correct answer.
17. (a) is the correct answer.
18. (b) is the correct answer.
19. (c) is the correct answer.
20. (d) is the correct answer.
21. (c) **P is false when c < 0**
22. (b) is the correct answer.
23. (a) is the correct answer.
24. (b) is the correct answer.
25. (d) is the correct answer.
26. (c) Let R take 6x days to complete the work.
∴ P and Q will take 2x and 3x days respectively.
 $\frac{1}{6x} + \frac{1}{2x} + \frac{1}{3x} = \frac{1}{10}$ (given)
 $\Rightarrow x = 10$
∴ P, Q and R take 20 days, 30 days and 60 days respectively to complete the work.
27. (b) The difference of any N – digit positive integer and its reverse is necessarily divisible by 9. It is necessarily divisible by 11 only when N is odd. The number of digits that P has is even.
∴ The difference of P and Q is divisible by 9 but not necessarily by 11.

28. (d)



Applying sine rule. $\frac{QR}{\sin P} = \frac{PR}{\sin Q} = \frac{PQ}{\sin R} = 2R$

$$\frac{QR}{\sin 120^\circ} = \frac{PR}{\sin 15^\circ} \Rightarrow \frac{QR}{\sqrt{3}} = \frac{PR}{2\sqrt{2}}$$

$$QR = 2(\sqrt{3} - 1)$$

$$\therefore PR = \frac{2(4-2\sqrt{3})}{\sqrt{6}}$$

Area of triangle PQR

$$= \frac{1}{2} (PQ)(PR) \sin 45^\circ = \frac{1}{2} 2(\sqrt{3} - 1) \frac{2(4 - 2\sqrt{3})}{\sqrt{6}} \frac{1}{\sqrt{2}}$$

$$= \frac{1}{\sqrt{3}} (6\sqrt{3} - 10)$$

29. (a) Let the radius and the height of the cylinder be r and h respectively and the radius of the hemisphere be R.

$$\pi r^2 h = \frac{2}{3} \pi R^3 \Rightarrow R^3 = \frac{3r^2 h}{2} = \frac{3}{2} (25) \frac{(45)}{4} \text{cm}^3$$

$$= \frac{(27)(125)}{8} \text{cm}^3$$

$$\therefore R = \frac{3(5)}{2} \text{cm} = 7.5 \text{cm.}$$

30. (b) Discriminant $= c^2 - 4(c^2 - 6c + 12) = 3c^2 + 24c - 48 = -3(c - 4)^2$

Both roots are real

∴ Discriminant is non – negative.

$$-3(c - 4)^2 \geq 0$$

$$(c - 4)^2 \leq 0 \text{ i.e., } (c - 4)^2 \text{ is negative or zero.}$$

But $(c - 4)^2$ cannot be negative

$$\therefore (c - 4)^2 = 0$$

$$\therefore c - 4 = 0$$

$$\text{i.e. } c = 4$$

31. (a) Let the roots be α and β

$$HM(\alpha, \beta) = \frac{14\sqrt{3}+30}{5+7\sqrt{5}}$$

$$\frac{2\alpha\beta}{\alpha + \beta} = \frac{14\sqrt{3} + 30}{5 + 7\sqrt{5}}$$

$$\frac{2 \frac{c}{a}}{\frac{-b}{a}} = \frac{14\sqrt{3} + 30}{5 + 7\sqrt{5}}$$

$$\frac{-2c}{b} = \frac{14\sqrt{3} + 30}{5 + 7\sqrt{5}}$$

$$\frac{c}{b} = \frac{-7\sqrt{3} - 15}{5 + 7\sqrt{5}}$$

$$\frac{b}{c} = \frac{5 + 7\sqrt{5}}{-7\sqrt{3} - 15}$$

32. (a) Any two of the three vertices are 10 units apart.
∴ The triangle is equilateral and has a side of 10.
Radius of the circle circumscribing the triangle $= \frac{10}{\sqrt{3}}$
(∴ The radius of the circle circumscribing an equilateral triangle $= \frac{a}{\sqrt{3}}$)

33. (a) The amount due after two years is ₹ 22,781.
The worth of the instalment Q, (paid now) after two years is $Q(1.09)^2$
The worth of the instalment Q, (paid after one year) after two years is $Q(1.09)$
 $\therefore Q(1.09)^2 + (1.09)Q = Q(1.09)(2.09) = 22,781 \Rightarrow Q = ₹10,000.$
34. (d) Area of a cyclic quadrilateral
 $= \sqrt{(s-a)(s-b)(s-c)(s-d)}$ where
 $s = \frac{a+b+c+d}{2}$
Here $a = 13, c = 23, b = 17, \text{ and } d = 21$
 $s = \frac{74}{2} = 37$
Area = $\sqrt{(24)(20)(14)(16)} \text{ cm}^2 = 328 \text{ cm}^2$
35. (c) Point of intersection of the lines $x + 2y - 3 = 0$ and $3x - y - 2 = 0$ is (1, 1).
 \therefore Equation of the line through (1,1) and parallel to $2x - y + 7 = 0$ is $2(x - 1) - 1(y - 1) = 0$
i.e., $2x - y - 1 = 0$
36. (d) Required ratio = $\frac{490}{560} = 7:8$
Therefore, the answer is UP and Kerala.
37. (c) Required ratio = $\frac{28\% \text{ of } 684}{19\% \text{ of } 490} = 72:35$
38. (a) Total investment = 20% of 3904 = Rs. 780.80 cr
39. (d) FDI in Delhi (cinema) = 6% of 410 = Rs. 24.60 cr
FDI in Kerala (others) = 19% of 560 = Rs. 106.40 cr
 \therefore Required percent
 $= \frac{106.40 - 24.60}{106.40} = \frac{81.8}{106.40} \approx 76.87\% = 77\%$
40. (b) Required % = $\frac{13\% \text{ of } 590}{28\% \text{ of } 684} \times 100 \approx 40\%$

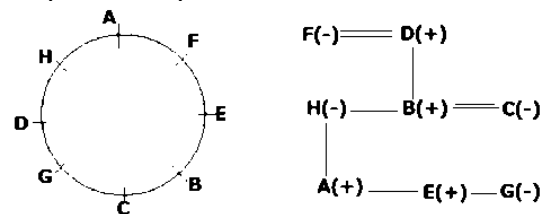
SECTION 02: LOGICAL REASONING

41. (a) In word 'PERFECT' the sum of place value of opposite letters, is 116. So Required code of SUPERGRADS is 142.
42. (c) Statement A: Q R S P
If P cannot come at 1st or 2nd & S also cannot come at 1st, 2nd and 4th, then S has to come at 3rd position. Now at the 2nd position, nor can P come, nor Q, nor S, therefore R comes at 2nd position. Now at 1st position Q will come and at the 4th position, P will come. Hence P, individually is sufficient.
Statement B: Q R S P
Q has to come on 1st position, and P has to come on 4th position as none of Q, R and S can come on 4th position will come at 2nd and S at the 3rd position. Therefore, both statements are individually sufficient to answer the questions.
43. (d) Statement A gives that Amar and Akbar both score 50 runs but no information about number of catches taken by Amar. Statement B individually states nothing about the runs scored by Amar and Antony. Therefore nothing can be concluded by A individually or B individually. On combining both the statements, we have Amar as the "Man of the Match."
44. (a) When the sheet shown in fig. (X) is folded to form a cube then one of the two half-shaded faces lies opposite to one of the blank faces and the other half-shaded face lies opposite to another blank face. The two remaining blank faces lie opposite to each other. Thus, both the cubes shown in figures (1). and (4) can be formed when the sheet shown in fig. (X) is folded. Also, though the cubes shown in figures (2) and (3) have faces that can appear adjacent to each other but the cube formed by folding the sheet in fig. (X) cannot be

rotated to form either of the two. Hence, the cubes in figures (2) and (3) cannot be formed. Hence; option (a) is correct.

45. (a) Statement (a) + conversion of statement (b) ("Some flowers are houses") gives no conclusion [A + I = no conclusion]. Hence, conclusion I does not follow. Statement (c) + Statement (b) gives no conclusion (A + I = no conclusion). Hence, conclusions II and IV do not follow. But these two conclusions make a complementary pair (IE-type). Hence, either II or IV follows. Conclusion III follows from conversion of statement (a).
46. (b) Statement (a) + statement (c) gives conclusion III [E + A = O*], Hence, conclusion III follows but conclusion I does not follow. Again, statement (b) + statement (c) gives conclusion II [A + A = A]. Statement (b) + conversion of statement (a) gives conclusion IV [A + E = E].
47. (b) Daughter of Deepak's father's wife will be his sister. The brother of her sister will be his brother. Hence, the person playing with football is Deepak's brother.
48. (a) A numismatist collects coins. Similarly, a philatelist collects stamps.
49. (a) First contains the details of the second.
50. (c) $F \geq G = H \leq I < J$
 $\boxed{F \geq H} \quad \boxed{J > H}$
51. (d) Split the expression as given below:
 $T < P \dots (i); P \leq U \dots (ii); L > U \dots (iii); U \leq K \dots (iv)$
and $P \geq R \dots (v)$
Now, combining (ii), (iv) and (v), we get, $K \geq U \geq P \geq R$ or $K \geq P \geq R$ or $K \geq R$. Therefore, Conclusion I follows. Again, combining (ii), (iii) and (v), we get, $L > U \geq P \geq R$ or $L > P \geq R$ or $L > R$. Hence, Conclusion II follows.
52. (d) $E > B > A \dots (i); D > C > B \dots (ii)$

Hint (Q.53 - Q.56):



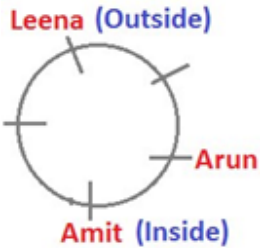
53. (a) is the correct answer.
54. (b) is the correct answer.
55. (a) is the correct answer.
56. (d) is the correct answer.
57. (b) ~~ABC~~

Hint [Q.58 - Q.60]:

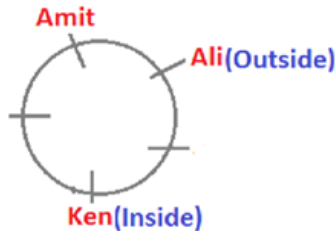
Month	Date	Employee
January	8 th	F
	19 th	G
March	8 th	B
	19 th	C
July	8 th	E
	19 th	H
Nov	8 th	D
	19 th	A

58. (d) is the correct answer.
59. (b) is the correct answer.
60. (a) is the correct answer.
61. (a) 'Very few' is a positive word and will represent at least some definite quantity. Therefore 'zero dollars' is definitely false.

62. (b) From statement I, Leena sits second to left of Amit. Amit faces the centre. Arun sits second to the right of Leena. If Leena faces the centre then Arun cannot be second to the right of Leena. It means Leena faces outside the centre. So all are not facing the centre.

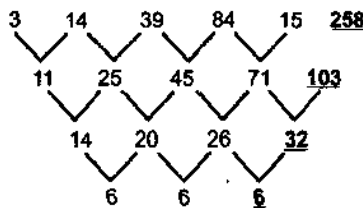


From statement II, Ali sits third to the left of Ken. Ken faces the centre. Amit sits to the immediate left of Ali. but Ken is not an immediate neighbour of Amit. If Ali faces the centre then Ken is the immediate neighbour of Amit. It means Ali faces outside the centre. So all are not facing the centre.



63. (d) From statement I, P is the mother of Q. Q is the son of R that means R is the husband of P. R is the son of T. it clear that Q is the grandson of T but we don't know the gender of T. so we cannot say, T is the grandmother of Q. From statement II, L is father of N and N is daughter of T. it means T is the wife of L. From both statement together, we find the gender of T. it means T is the grandmother of Q. So both statement together are necessary to answer the question.

64. (a) Check following pattern:



Third difference is 6. So according to the table given above, right answer is 258 i.e., option (a).

65. (c) Check following pattern:

$$6 = 2 \times 3$$

$$15 = 3 \times 5$$

$$35 = 5 \times 7$$

$$77 = 7 \times 11$$

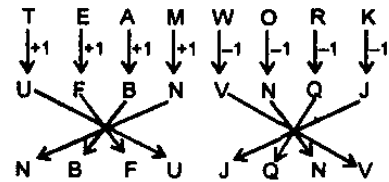
$$143 = 11 \times 13$$

So next number should be $13 \times 17 = 221$, right answer is option (c).

66. (a) is the correct answer

67. (b) is the correct answer.

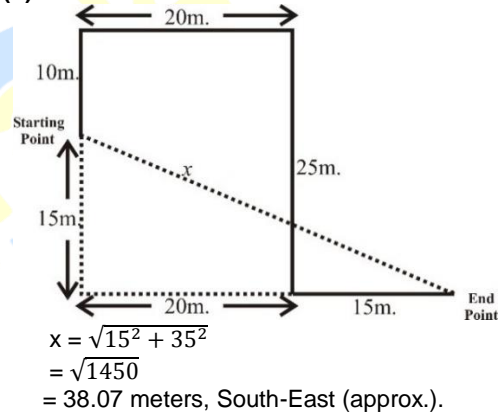
68. (c) Check following pattern:



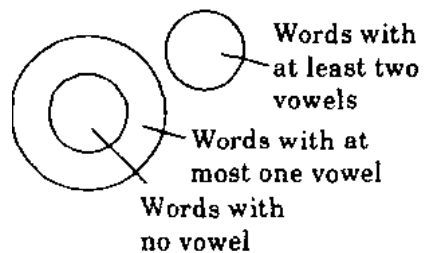
Hence, PERSON will be coded as SFQMNR in that code language.

69. (c) Clearly, a lizard crawls and the animals that crawl are called 'flying'. So, 'lizard' is called 'flying'.
70. (b) The response of the public to the circus shows during the last seven days is considerably good. So, it can be assumed that the similar response may be expected in the extended days. So, assumption II is implicit. Assumptions I and III are not related to the statement, so they are not implicit.
71. (c) Both the given statements, at best, are conclusions of the statement that technology has created new gaps, while at the same time bridging old ones. They're not valid assumptions.

72. (b)



73. (c)



74. (d) The availability of vegetables is not mentioned in the given statement. So, I does not follow. Also, II is not directly related to the statement and so it also does not follow.

75. (d) Sunita has a very busy schedule. This means that she is industrious. But still she finds time for rest. This means that she is an organised person. So, both I and II follow.

Hint (Q.76 – Q.78): Students let us understand the Logic behind this Question and let's understand how to solve it. When we see the each step, then we can find that there is both number and words are arranged in each step.

- (a) For words arrangement- Words are arranged in reverse alphabetical order according to last letter of the word from right end.

- (b) For number arrangement- Each number is two digits number. For arrangements of these given number, we have to first multiply the two digits of given number and then number are arranged in descending order

from left to right according to multiplication of these given number. In this question number $36 = 3 \times 6 = 18$ (highest among all the multiplication value) arranged first to extreme left. And this process is continued in further step.

Input: debt 51 meau 62 loved 36 full 91 means 72

Step I: 36 debt 51 62 loved full 91 means 72 meau

Step II: 72 36 51 62 loved full 91 means meau debt

Step III: 62 72 36 51 loved full 91 meau debt means

Step IV: 91 62 72 36 51 loved meau debt means full

Step V: 51 91 62 72 36 meau debt means full loved

76. (d) 'full 91 meau' found in Step III.
77. (a) Step IV: 91 62 72 36 51 loved meau debt means full '51' is the fifth position from left in Step IV.
78. (a) is the correct answer.
79. (d) Let the age of Prakash = a yr
According to the question,
Age of Shyam = 3a yr
Age of Ram = $\frac{3a}{2}$ yr
Now, given that the sum of their ages is 55.
 $a + 3a + \frac{3a}{2} = 55$
 $8a + 3a = 110$
 $11a = 110$
 $\therefore a = 10$
Now, the age of Ram = $\frac{3a}{2} = \frac{3 \times 10}{2} = 15$ yr
80. (a) Let Kitu's age now be Y, Anu's age now is X.
 $(X - 7) = A(Y - 7)$. But X is 18 and therefore
 $11 = A(Y - 7)$
 $11/A = Y - 7$
 $(11/A) + 7 = Y$

SECTION 03: VERBAL ABILITY

81. (c) Use 'for' in place of 'since'. In case of duration of time, the preposition 'for' is used as opposed to the beginning of time duration, where 'since' is used.
82. (a) 'Round the clock' is the correct phrase. 'Around the clock' would mean revolving around the clock, which wouldn't make sense.
83. (d) No error
84. (a) Mr. Sharma should be made Mr. Sharma's. Possessive case is used when a Singular noun precedes a gerund.
85. (a) Say 'have done' since' (a) should be in present perfect tense.
86. (b) The ebb and flow is a parcel subject and agrees with a singular verb. Look at the sentences: The crown and glory of life is character. Horse and carriage is waiting at the gate.
87. (c) Refer to the middle of the penultimate paragraph. "Stockholder's sculptures are in no way ..." explains why her works are not considered pictorial.
88. (b) 'Palette' here means the range of colours (last para second sentence).
89. (d) The author defines a 'sculpture' in the first paragraph and moves on to say that he has chosen those two exhibitions to prove his standpoint. To him sculpture is any three-dimensional object serving a decorative, aesthetic or conceptual purpose.
90. (c) Refer to the fourth para of the passage which highlights on the significance of the wall in Stockholder's works.
91. (a) In the penultimate para the author says that the works of Stockholder does not offer three dimensionality when seen from a static point. Hence option (b) is true. The last sentence of para one shows that Donald Judd's works have been accepted as sculptures. Hence option (c) is true. According to the last sentence of para 4, option (d) is true. She uses latex and acrylic colours and hence option (a) is not true.
92. (a) The paragraph covers the following points: (a) Caterpillars can defend themselves from predators by releasing venom from their bodies, (b) Some caterpillars make whistling sounds or clicking noises when threatened, (c) The whistling sounds made by caterpillars mimic alarm sounds made by birds and scare the birds away. Choice (a) best represents this state of affairs. (d) while being equally representative of the paragraph, appears to be verbose.
(b) throws no light on what the defense mechanisms are.
(c) omits the physical attributes section altogether.
93. (b) The question paragraph covers the following important points: (a) Commonwealth Bank logo is a yellow diamond, with a black chunk sliced out in one corner, (b) The logo is a very familiar sight in Australia, (c) But hidden away in the diamond is the Southern Cross constellation. (c) captures these points precisely. (a) does not reveal what the logo looks like to the unenlightened eye. (c) mentions "the bank's competition" and complicates matters. (d) is very technical and undramatic. unlike the question paragraph.
94. (b) A period signifying the ignorance of astronomers about this.
95. (b) The passage reveals the reason of not studying the dark age as lack of suitable things at which to point them. Moreover the events happened 13 billion years ago.
96. (a) It is clear from the passage that all new quassars are terribly faint, a challenge that both teams overcame by peering at them through one of the twin Keeck telescope in Hawaii. They are largest and collect most light.
97. (b) According to the passage the fog prolonged the period of darkness until the heat formed. First stars and quassars had the chance to ionise the hydrogen.
98. (a) As per Principle (i), no confession made by any person whilst in the custody of a police officer, unless it be made in the immediate presence of a Magistrate, will be proved as against such person. In the instant case, the confession was made by Girdhar in the presence of a Magistrate and hence, could be proved against him.
99. (a) As per Principle (ii), the Constitution of India provides that no person accused of an offence will be compelled to be a witness against himself. In the instant case, since Girdhar was forced to confess against himself, he will be protected under the Constitution, irrespective of whether he gave the statement in the presence of a Magistrate or not.
100. (a) Total seats on which election results got declared were 542, elections to one constituency i.e Vellore in Tamil Nadu, were postponed.
101. (d) In the context of 'sheer necessity has contributed to the growing demand for sales analytics',

- 'demanding' rather than 'intriguing' or 'invading' qualifies the noun customers'. For the second blank, the clue is 'world—it is not limited by industry', which disqualifies 'competitive'
102. **(d)** The passage talks of the new trends 'marketing' where the 'consumers' also play a role. A consumer will only 'create earned media if he/she is deeply in love or enamored' with it. For the second blank 'willingly' rather than 'alleviating' goes with 'promoting it to friends'
103. **(b)** The passage talks of the importance of the bosses. 'They matter because they set the 'tone' for their followers and organizations. For the second blank, 'mimic' is the right fit before 'their moves'.
104. **(a)** Nuance is a very slight difference in meaning, sound, colour or somebody's feeling that is not usually very obvious. Subtle is also not-very noticeable or obvious. Pun is the clever or humorous use of a word that has more than one meaning or of words that have different meanings but sound the same. Sarcastic is an expression or way of using words that are opposite of what you mean in order to be unpleasant to somebody. So, option (a) expresses the same relationship as the original pair.
105. **(b)** Arena is an area of activity that concerns the public, especially one where there is a lot of opposition or conflict. Forum is a place where discussion takes place and people can exchange opinion or ideas. So, option (b) expresses the same relationship.
106. **(c)** Hierarchy is a system in which people are ranked into different levels of importance from highest to lowest. Similarly, chronology is the order in which a series of events happen.
107. **(c)** EC is the strongest pair that will leave one only with option (c)
108. **(a)** B and E form a mandatory pair. Also C is conclusive
109. **(d)** option (d) has the most plausible sequence of events.
110. **(a)** D and B form a mandatory pair and also AC is a mandatory pair.
111. **(c)** After the blank, there has been the use of co-ordinating conjunction 'and' which will take the words of the same intensity. The usage of 'tough' indicates that another word that will be used is 'hardy' which means capable of enduring fatigue, hardship, exposure. Hence, (c) is the correct option.
112. **(c)** Since the living conditions of the people living in the slum is not very smooth. They are subjected to a lot of hardships. Hence, the suitable word that will be used here will be 'exposed' which means 'to lay open to danger, attack, harm. Hence, (c) is the correct option.
113. **(a)** The rising sun is the start of the day. The life starts with it. So, this context is shown best by the usage of "herald" which means to indicate or signal the coming of; usher in. Hence, (a) is the correct option.
114. **(c)** The phrasal collocation that is suitable to be used is "goes up..... comes down". So, the blank will be filled by 'goes'. Hence, (c) is the correct option.
115. **(d)** Possession of anything is shown by the usage of 'have'. Hence, (d) is the correct option.
116. **(d)** Since the people living in the slums have no disease or disorder as the normal people are supposed to have; they are beyond the worries. So, there is 'nothing' to worry for them. Hence, (d) is the correct option.
117. **(c)** This sentence doesn't need 'about'.
118. **(b)** It should be "it had" in place of "it had had"
119. **(c)** After the use of 'repeat', the use of 'again' is uncalled for.
120. **(d)** is the correct answer.