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SBI PO Preliminary Model Paper 4

By Ramandeep Singh

Quantitative Aptitude

1. Two pipes A and B can separately fill a cistern in 60 minutes and 75 minutes respectively. There is a third pipe in the bottom of the cistern to empty it. If all the three pipes are simultaneously opened, then the cistern is full in 50 minutes. In how much time, the third pipe alone can empty the cistern?
   a) 90 min b) 100 min c) 110 min
   d) 120 min e) None of these

2. What will be the ratio of simple interest earned by certain amount at the same rate of interest for 6 years and that for 9 years?
   a) 1 : 3 b) 1 : 4 c) 2 : 3
   d) Data inadequate e) None of these

3. When any number is divided by 12, then dividend becomes $\frac{1}{4}$th of the other number. By how much percent first number is greater than the second number?
   a) 150 b) 200 c) 300
   d) Data inadequate e) None of these

4. A sphere of 30 cm radius is dropped into a cylindrical vessel of 80 cmj diameter, which is partly filled wikth water, then its level rises by x cm. Find x:
   a) 27.5 cm b) 22.5 cm c) 18.5 cm
   d) Data inadequate e) None of these

5. Which of the following numbers is divisible by 24?
   a) 35718 b) 63810 c) 537804
   d) 3125736 e) None of these

6. The average weight of A, B and C is 45 kg. If the average weight of A and B be 40 kg and that of B and C be 43 kg, then the weight of B is:
   a) 17 kg b) 20Kg c) 26Kg
   d) 31Kg e) None of these

7. The maximum numbers of students among them 1001 pens and 910 pencils can be distributed in such a way that each student gets the same number of pens and same number of pencils is
   a) 91 b) 910 c) 1001
   d) 1911 e) None of these

8. In how many ways can a group of 5 men and 2 women be made out of a total of 7 men and 3 women?
   a) 63 b) 90 c) 126
   d) 145 e) None of these

9. A card is drawn from a pack of 52 cards. The probability of getting a queen of club or a king of heart is:
   a) 1/13 b) 2/13 c) 1/26
   d) 1/52 e) None of these

10. Ayesha's father was 38 years of age when she was born while her mother was 36 years old when her brother four years younger to her was born. What is the difference between the ages of her parents?
    a) 2 years b) 4 years c) 6 years
    d) 12 years e) None of these

11. Samant bought a microwave oven and paid 10% less than the original price. He sold it with 30% profit on the price he had paid. What percentage of profit did Samant earn on the original price?
    a) 17% b) 20% c) 27%
    d) 32% e) None of these

12. The sum of *n* terms of the series, where *n* is an even number :
    $1^2 \quad 2^2 + 3^2 \quad 4^2 + 5^2 + 6^2 + \ldots$:
    a) *n* (n + 1) b) $\frac{n\,(n+1)}{2}$ c) $\frac{n\,(n+1)}{2}$
    d) Data inadequate e) None of these

13. If $x \times y = x + y + \overline{xy}$ then the value of 6×24 is
    a) 41 b) 42 c) 43
    d) 44 e) None of these

14. A person has to cover a distance of 6 km in 45 minutes. If he covers one-half of the distance in two-thirds of the total time; to cover the remaining distance in the remaining time, his speed (in Km/hr) must be
    a) 6 b) 8 c) 12
    d) 15 e) None of these

15. A can finish a work in 18 days and B can do the same work in 15 days. B worked for 10 days and left the job. In how many days, A alone can finish the remaining work?
    a) 5 b) $5\frac{1}{2}$ c) 6
    d) 8 e) None of these

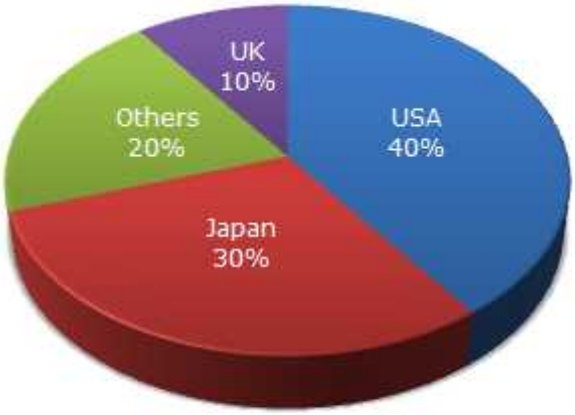
16. In ΔABC, B = $\frac{\pi}{3}$ and C = $\frac{\pi}{4}$. Let D divide BC internally in the ratio 1 : 3, then $\frac{\sin(\angle BAD)}{\sin(\angle CAD)}$ =
    a) $\frac{1}{3}$ b) $\frac{1}{\sqrt{6}}$ c) $\frac{1}{\sqrt{3}}$
    d) $\frac{\overline{2}}{3}$ e) None of these

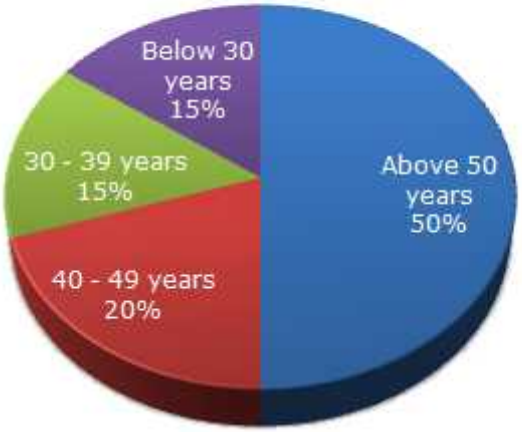
17. Find the length of one side of a right triangle if the length of the hypotenuse is 15 inches and the length of the other side is 12 inches.
    a) 8 inches b) 7 inches c) 9 inches
    d) 13 inches e) None of these

18. In one hour, a boat goes 11 km along the stream and 5 km against the stream. The speed of the boat in still water in (km/hr) is
    a) 3 b) 5 c) 8
    d) 9 e) None of these

The followig pie charts exhibit the distribution of the overseas tourist traffic from India. The two charts shows the tourist distribution by country and the age profiles of the tourists respectively.

Distribution of Overseas Tourist Traffic from India.





19. What percentage of Indian tourist went to either USA or UK?
    a) 40% b) 50% c) 60%
    d) 70% e) None of these

20. The ratio of the number of Indian tourists that went to USA to the number of Indian tourists who were below 30 years of age is?
    a) 2 : 1 b) 8 : 3 c) 3 : 8
    d) Cannot be determined e) None of these

21. If amongst other countries, Switzerland accopunted for 25% of the Indian tourist traffic, and it is known from official Swiss records that a total of 25 lakh Indian tourists had gone to Switzerland during the year, then find the number of 30 – 39 year old Indian tourists who went abroad in that year?
    a) 18.75 lakh b) 25 lakh c) 50 lakh
    d) 75 lakh e) None of these

22. On 8th Feb. 2005 it was Tuesday. What was the day of the week on 08th Feb. 2004?
    a) Tuesday b) Monday c) Sunday
    d) Wednesday e) None of these

23. The reflex angle between the hands of a clock at 10.25 is :
    a) 180° b) $192\frac{1^\circ}{2}$ c) 195°
    d) $197\frac{1^\circ}{2}$ e) None of thes

24. Find the ratio in which rice at Rs. 7.20 a kg be mixed with rice at Rs. 5.70 a kg to produce a mixture worth Rs. 6.30 a kg.
a) 1 : 3 b) 2 : 3 c) 3 : 4
d) 4 : 5 e) None of these

25. One pipe can fill a tank three times as fast as another pipe. If together the two pipes can fill the tank in 86 minutes, then the slower pipe alone will be able to fill the tank in
a) 81 min b) 108 min c) 144 min
d) 192 min e) None of these

26. What will be the simple interest earned on an amount of Rs.16,800 in 9 months at the rate of $6\frac{1}{4}$% p.a.?
a) Rs.787.50 b) Rs.812.50 c) Rs.860
d) Rs.887.50 e) None of these

27. The students appeared at an examination. One of them secured 9 marks more than the other and his marks was 56% of the sum of their marks. The marks obtained by them are :
a) 39, 30 b) 41, 32 c) 42, 33
d) 43, 34 e) None of these

28. What is the ratio of the area of larger square shaped plot to the area of the smaller square shaped plot?
a) 17 : 1 b) 25 : 9 c) 16 : 1
d) Data inadequate e) None of these

29. The difference of the squares of two consecutive even integers is divisible by which of the following integers?
a) 3 b) 4 c) 6
d) 7 e) None of these

30. If the average marks of three batches of 55, 60 and 45 students respectively is 50, 55, 60, then the average marks of all the students is:
a) 53.33 b) 54.68 c) 55
d) Data inadequate e) None of these

31. The HCF of two numbers is 8. Which one of the following can never be their LCM?
a) 8 b) 12 c) 60
d) 72 e) None of these

32. If $5x^2$ 13xy + $6y^2$ = 0, then x : y is :
a) 2 : 1 only b) 3 : 5 only c) 5 : 3 or 1 : 2
d) 3 : 5 or 2 : 1 e) None of these

33. A, B, C hired a car for Rs.520 and used it for 7,8 and 11 hours respectively. Hire charges paid by B were
a) Rs.140 b) Rs.160 c) Rs.180
d) Rs.220 e) None of these

34. In how many different ways can the letters of the word 'OPTICAL' be arranged so that the vowels always come together?
a) 120 b) 720 c) 4320
d) 2160 e) None of these

35. One card is drawn at random from a pack of 52 cards. What is the probability that the card drawn is a face card (Jack, Queen and King only)?

a) $\frac{1}{13}$ b) $\frac{3}{13}$ c) $\frac{1}{4}$
d) $\frac{9}{52}$ e) None of these

Reasoning Ability

36. How many meaningful English words can be made with the letters SULETR using each letter only once in each word?
a) None b) One c) Two
d) Three e) More than three

37. Four of the following five are alike in a certain way and so form a group. Which is the one that does not belong to that group?
a) EV b) GT c) IR
d) KP e) LN

38. In a certain code, DEEP is written as 60 and RABIT is written as 100. How is HAIR written in that code?
a) 72 b) 27 c) 80
d) 50 e) None of these

39. If it is possible to make a meaningful word with 1st, 5th and 8th letters of the word 'INDISTINGUISHABLE', which of the following will be the 2nd letter from the right end? If no such word can be formed give 'X' as the answer and if more than one such word can be formed give 'Y' as the answer
a) I b) S c) N
d) X e) Y

40. If '+' means ' ', ' ' means '×', '×' means '÷' and '÷' means '+', then what will be the value of 300 + 28 5 × 32 ÷ 14 = ?
a) 55 b) 50 c) 55
d) 40 e) None of these

41. If all vowels in the word SOVEREIGN are arranged in alphabetical order and all consonants are arranged in reverse alphabetical order then which of the following letter will be third to the right end?
a) S b) N c) O
d) I e) R

42. How many digits are there in the number 893642 retain its position if they are rearranged in ascendingand descending order?
a) None b) One c) Two
d) Three e) More than three

43. How many such pairs of letters are there in the word TRANSCRIBE each of which has as many letters between them in the word as in the English alphabet?
a) None b) One c) Two
d) Three e) More than three

44. What will be there in place of in the following series?
EG35, IK99, MO182, PR288, ?
a) TV440 b) ZA26 c) TU420
d) ST380 e) None of these

45. What should come next in the following number series?
86 42 34 56 76 42 34 56 42 34 ….
a) 7 b) 6 c) 8
d) 3 e) None of these

46. 'BD' is related to 'DH' in the same way 'MO' is related to ….
a) PR b) QR c) OS
d) OP e) OQ

47. R is uncle of A. R is grand father of Q. Q's brother name is P, then what is relation of P to A?
a) Brother b) Grand father c) Father
d) Uncle e) None of these

48. Among P, Q, R, S and T each having different weight. R is heavier than only P and S is lighter than Q and heavier than T. Who among them is the heaviest?
a) P b) Q c) S
d) Data inadequate e) None of these

49. If blue is called green, green is called white, white is called black, black is called red and red is called yellow, then which of the following is the colour of unripe Banana?
a) Black b) Green c) White
d) Yellow e) Red

50. Mohit correctly remembers that his father's brithday is not after 18^{th} of April. His sister correctly remembers that their father's birthday is before 20^{th} but after 17^{th} of April. On which day in April was definitely their father's birthday?
a) 17^{th} b) 19^{th} c) 18^{th}
d) 17^{th} or 18^{th} e) None of these

Directions (Q. ____) Following questions are based on the five three digit numbers given below.

528 739 846 492 375

51. Which of the following represents the sum of the first two digits of the highest number?
a) 7 b) 10 c) 12
d) 13 e) None of these

52. If the positions of the 1^{st} and the 2^{nd} digits of each number are interchanged, which of the following will be the 3^{rd} digit of the 2^{nd} lowest number?
a) 8 b) 9 c) 6
d) 2 e) 5

53. If the positions of the first and the third digits of each number are interchanged, which of the following will be the middle digit of the third highest number?
a) 2 b) 3 c) 4
d) 9 e) 7

Directions (Q. ____) Study the following information carefully and answer the questions given below.

(i) 'P × Q' means 'P is sister of Q'.
(ii) 'P + Q' means 'P is mother of Q'.
(iii) 'P Q' means 'P is father of Q'.
(iv) 'P ÷ Q' means 'P is brother of Q'.

54. Which of the following represents 'W is grand father of H'?
a) W + T H b) W ÷ T H c) W × T + H
d) W ÷ T + H e) None of these

55. Which of the following represents 'M is nephew of R'?
a) M ÷ T R b) R ÷ T M c) R × T + M × J
d) R ÷ T M ÷ J e) None of these

Directions (Q. ____) In each of the questions below are given four statements followed by four conclusions numbered I, II, III and IV. You have to take the given statements to be true eve, if they seem to be at variance fromcommonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

56. **Statements:** All rockets are poles.
Some poles are trams.
Some trams are ropes.
All ropes are tents.
Conclusions: I. Some tents are trams.
II. Some ropes are rockets.
III. Some trams are rockets.
IV. Some poles are rockets.

a) Only I and II follow
b) Only I, II and III follow
c) Only I and III follow
d) Only I and IV follow
e) None of these

57. **Statements:** All dials are mirrors.
All mirorrs are spoons.
Some spoons are decks.
Some decks are chairs.
Conclusions: I. Some decks are mirrors.
II. Some spoons are dials.
III. Some decks are dials.
IV. Some chairs are spoons.

a) None follows
b) Only I follows
c) Only II follows
d) Only III follows
e) Only IV follows

58. **Statements:** Some houses are forests.
All forests are trees.
Some trees are hills.
All hills are buses.
Conclusions: I. Some buses are trees.
II. Some trees are houses.
III. Some hills are houses.
IV. Some buses are forests.

a) Only I and II follow
b) Only I, II and IV follow
c) Only I, II and III follow

d) All I, II, III and IV follow
e) None of these

59. **Statements:** Some ponds are rivers.
Some rivers are mountains.
Some mountains are books.
Some books are papers.
Conclusions: I. Some books are rivers.
II. Some papers are ponds.
III. Some mountains are ponds.
IV. No paper is ponds.
a) None follows
b) Only either II or IV follows
c) Only II follows
d) Only IV follows
e) Only either II or IV and III follow

60. **Statements:** Some tigers are horses.
All horses are goats.
All goats are dogs.
Some dogs are cats.
Conclusions: I. Some cats are tigers.
II. Some dogs are horses.
III. Some goats are tigers.
IV. Some cats are horses.
a) Only I and II follow
b) Only I, II and III follow
c) Only II and III follow
d) Only II, III and IV follow
e) None of these

61. **Statements:** All notebooks are pens.
No pen is table.
Some tables are desks.
All desks are tanks.
Conclusions: I. Some tanks are pens.
II. Some desks are notebooks.
III. Some tanks are tables.
IV. No tank is pen.
a) Only I follows
b) Only III follows
c) Only IV follows
d) Only either I or IV follows
e) Only either I or IV and III follow

Directions (Q. _____) Study the following information carefully and answer the questions given below.

P, Q, R, S, T, V, W and Z are sitting around a circle facing the centre. T is 2nd to the right of R who is 3rd to the right of P. S is 2nd to the left of P and 4th to the right of Q. Z is 3rd to the right of V who is not an immediate neighbour of P.

62. In which of the following combinations is the first person sitting in between the 2nd and the 3rd persons?
a) VTS b) TZS c) QRV

d) PWQ e) VRT

63. Who is 2nd to the right of T?
a) S b) Z c) P
d) R e) None of these

64. What is P's position with respect to S?
a) 4th to the left
b) 4th to the right
c) 5th to the left
d) 6th to the left
e) 3rd to the right

65. Who is the immediate left to Z?
a) T b) P c) S
d) V e) None of these

66. Who is 2nd to the right of W?
a) R b) Q c) Z
d) S e) None of these

Directions (Q. ____) Study the following arrangement carefully and answer the questions given below.

W 7 @ I R P 3 9 B A $ 4 H D 5 © M E 2 % T * 8 ! U Q N 1 V 6 # K F

67. How many such consonants are there in the above arrangement, each of which is immediately preceded by a consonant and immediately followed by a symbol?
a) None b) One c) Two
d) Three e) More than three

68. If all the symbols are dropped from the above arrangement, which of the following will be the 15th from the left end?
a) E b) 5 c) D
d) 2 e) None of these

69. How many such numbers are there in the above arrangement, each of which is immediately preceded by a symbol and immediately followed by a consonant?
a) None b) One c) Two
d) Three e) More than three

70. Four of the following five are alike in a certain way based on their positions in the above arrangement and so form a group. Which is the one that does not belong to that group?
a) T * 2 b) Q N ! c) 3 9 R
d) 6 V K e) % T E

Engligh Language

King Hutamasan felt he had everything in the World not only due to his riches and his noble knights, but because of his beautiful queen, Rani Matsya. The rays of the Sun were put to shame with the iridescent light that Matsya illuminated, with her beauty and brain. At the right hand of the king, she was known to sit and aid him in all his judicial probes. You could not escape her deep-set eyes, when you committed a crime as she always knew the victim and the culprit. Her generosity preceded

her reputation in the kingdom and her hands were always full to give. People in the kingdom **revered** her because if she passed by, she always gave to the compassionate and poor.

Far away from the kingly palace lived a man named Raman with only ends to his poverty and no means to rectify it. Raman was wrecked with poverty as he had lost all his land to the landlord. His age enabled him little towards manual labour and so begging was the only alternative to salvage his wife and children. Every morning, he went door t o door for some work, food or money. The kindness of people always got him enough to take home. But Raman was a little self-centered. His World began with him first, followed by his family and t he rest. So, he would eat and drink t o his delight and ret urn home with whatev er he found excess. This routine followed and he never let anyone discover his interests as he always put on a long face, when he reached home.

One day as he was relising the bowl of rice he had just received from a humble home, he heard that Rani Matsya was to pass from the very place he was standing. Her g enerosity had reached his ears and he knew if he pulled a long face and showed how poor he was, she would hand him a bag full of gold coins – enough for the rest of his life, enough to buy food and supplies for his family. He thought he could keep some coins for himself and only reveal a few to his wife, so he can fulfil his own wishes.

He ran to the chariot of the Rani and begged her soldiers to allow him to speak to the queen. Listening t o the arguments outside Rani Matsya opened the curtains of her chariot and asked Raman what he wanted. Raman went on his knees and praised the queen. I have heard you are most generous and most chaste, show this beggar some charity. Rani narrowed her brows and asked Raman what he could give her in return, surprised by such a question, Raman looked at his bowl full of rice. With spite in him he just pricked up a few grains of rice and gave it to the queen. Rani Matsya counted the 5 grains and looked at his bowl full of rice and said, you shall be given what is due to you. Saying this, the chariot galloped away.

Raman abused her under his breath. This he never thought would happen. How could she ask him for something in return, when she hadn't given him anything? Irked with anger he stormed home and gave his wife the bowl of rice. Just then he saw a sack at the entrance. His wife said men had come and kept it there. He opened it to find it full of rice. He put his hand inside and caught hold of a hard mental only to discover it was a gold coin. Elated he upturned the sack to find 5 gold coins in exact for the five rice grains. If only I had given my entire bowl, thought Raman, I would have had a sack full of gold.

71. What does the phrase 'pulled a long face' as used in the passage mean?
    a) Scratched his face
    b) Looked very sorrowful
    c) Disguised himself
    d) Put on makeup

72. What can possibly be the moral of the story?
    a) Do onto others as you would want others to do to you
    b) Patience is a virtue
    c) Winning is not everything, it is the journey that counts
    d) Change is the only constant thing in life

73. Why was begging the only option for Raman to get food?
    a) As Raman belonged to a family of beggars
    b) As begging was the easiest way for him to obtain food
    c) As Raman's family had forced him to beg
    d) As he had lost all his property and was too old to do manual work

74. What did Raman find after he ret urned home from his meeting with Rani Matsya?

a) The Rani's soldiers
b) An empty house
c) The five grains of rice that he had given to Rani Matsya
d) A sack full of rice and five gold coins

75. According to the passage, which of the following is definitely true about Rani Matsya?
A. She was beautiful.
B. She was intelligent.
C. She was kind.
a) Only A b) Only B c) Only C
d) A and B e) All the three

76. Which of the following words can be used to describe Raman?
A. Deceitful
B. Selfish
C. Timid
a) Only A b) Only B c) A and B
d) B and C e) All the three

Directions (____) Choose the word/group of words which is most similar in meaning to the word/group of words printed in bold as used in the passage.

77. Galloped
a) Hurtled b) Stumbled c) Slumbered
d) Jumped e) Ran

78. Revered
a) Remembered b) Feared c) Talked about
d) Embraced e) Respected

Directions (Q. ____) Choose the word/group of words which is most opposite in meaning to the word/group of words printed in bold as used in the passage.

79. Reveal
a) Stop b) Conceal c) Present
d) Pending e) Tell

80. Elated
a) Afraid b) Poor c) Happy
d) Depressed e) Grounded

Directions (Q. ____) Each question below has two blanks, each blank indicating that something has been omitted. Choose the set of words for each blank which best fits the meaning of the sentence as a whole.

81. Much of the ____ that cricket has is due to the fact it is a ____ sport.
a) allure, lucrative
b) criticism, controversial
c) flak, great
d) comments, unusual
e) attraction, unpopular

82. Since foggy weather ____ visibility by several metres, the railways has either partially ____ or diverted some of the trains.
a) improves, started

b) impairs, called off
c) hampers, withdrawn
d) decrease, stopped
e) reduces, cancelled

83. The once ____ district is gradually being ____ of its green cover.
a) remote, eroded
b) arid, replenished
c) beautiful, devoid
d) picturesque, depleted
e) lush, rob

84. The pilot knew she would be able to see the ____ lights of the city from her cockpit window, but she would not see the fireworks explode to welcome the new year as she would have ____ to cruising altitude.
a) few, soared
b) divine, escalate
c) glistening, jumped
d) shining, reached
e) glittering, climbed

85. The New Year has ____ in good news for city hotels as most properties are ____ for the whole month.
a) brought, deserted
b) ushered, packed
c) pushed, full
d) steered, renovating
e) escorted, vacant

Directions (Q. ____) Read each sentence to find out whether there is any grammatical error of idiomatic error in it. The error, any, will be in one part of the sentence. The number of that part is the answer. If there is no error, the answer is (5). (Ignore errors of punctuation, if any).

86. In cities people don't (1) / always have the time to (2) / catch up with old friends or (3) / spend times with their family. (4) / No error (5)
87. The band have been (1) / performing at many cause oriented concerts (2) / to encourage people to come forward and (3) / lend their support to the noble cause. (4) No error (5)
88. As market leaders, (1) / we have always been at (2) / the forefront of creating awareness (3) / between the public. (4) No error (5)
89. If the IPL has succeeded in drawing (1) / an audience across the country, it is because (2) / cricket has always had a strong foundation (3) / and a dedicated audince. (4) No error (5)
90. In view of the intense cold wave conditions (1) prevailing in the state, the government declared (2) / holidays in all the schools (3) / for a period of ten days. (4) No error (5)

Directions (Q. ____) In the following passage there are blanks, each of which has been numbered. These numbers are printed below the passage and against each, five words/phrases are suggested, one of which fits the blank appropriately. Find out the appropriate word/phrase in each case.

The economics of owning and running a Ration Shop, the familiar name for the outlets in our Public Distribution System, are such that under normal business terms, the shop owner could never make a profit. Yet, (91) the government announces that new permits for ration shops will be given out, there is frenzy in the market to grab one will be given out of these (92)? The answer is obvious: the business is not for the honest and if one knows the (93). There is a fortune to be made.

What are these tricks of the trade?

- Getting fake names into the user list is the most obvious option: the State seems to be (94) a losing battle against this practice, judging by the endless efforts to weed out bogus ration cards.
- The next is to get the 'right customers' on the list, not just more customers. These are people who are registered but who do not have any interest in (95) on their entitlements. In a system where caste and income certificates are for sale, it is not (96) to 'produce' these documents for mutual benefit. Receipts are duly made in their names, and the rations thus 'drawn' are (97) off into the open market. The sale price of an item like rice makes clear the (98) economics – it costs Rs.8 in a ration shop while in the latter is Rs.30 or above. There are also customers who would rather exchange their entitlements for hard cash at the beginning of the month.
- As the degradation progresses, the shopkeeper, in (99) with the official machinery, manages to withhold effectively the entitlements from even the genuine beneficiaries, and diverts them to the open market. The targeted group is usually not in a position to (100) it self to get its due.

91. a) whenever b) quickly c) just
d) as soon e) time

92. a) what b) when c) where
d) why e) how

93. a) lying b) people c) sprouting
d) hard work e) ropes

94. a) attempt b) waging c) winning
d) expecting e) trying

95. a) harping b) discussing c) realizing
d) drawing e) giving

96. a) easy b) must c) difficult
d) simple e) enough

97. a) sell b) borrowed c) donated
d) bought e) siphoned

98. a) understood b) poor c) underlying
d) mechanical e)unclear

99. a) meeting b) collusion c) flow
d) show e) line

100. a) ask b) voiced c) assert
d) deliver e) willful

Answers:

1. Work done by the third pipe in 1 min. $= \frac{1}{50} \quad [\frac{1}{60} + \frac{1}{75}]$
$= [\frac{1}{50} \quad \frac{3}{100}]$
$= \frac{1}{100}$

Therefore, the third pipe alone can empty the cistern in 100 min.

2. Let the principal be P and rate of interest be R%.
So, required ratio = $\frac{\frac{P \times R \times 6}{100}}{\frac{P \times R \times 9}{100}} = \frac{6PR}{9PR} = \frac{6}{9} = 2 : 3$

3. Let the number be x and y. Then, $\frac{x}{12} = \frac{y}{4}$
x = 3y
So, required percentage = $[\frac{x \quad y}{y} \times 100]\% = [\frac{2y}{y} \times 100]\% = 200\%$

4. Volume of water displaced = volume of sphere
$\pi \times (40)^2 \times h = \frac{4}{3} \pi \times (30)^3$
h = $\frac{90}{4}$ = 22.5 cm
Thus, the level of water rises by 22.5 cm.
Note The volume of water will be calculated by considering it in the cylindrical shape since the water takes the shape of vessel in which it is filled.

5. 24 = 3 × 8, where 3 and 8 are co-primes.
Clearly, 35718 is not divisible by 8, as 718 is not divisible by 8
Similarly, 63810 is not divisible by 8 and 537804 is not divisible by 8.
Consider part (d)
Sum of digits = (3 + 1 + 2 + 5 + 7 + 3 + 6) = 27, which is divisible by 3.
Also, 736 is divisibly by 8.
So, 3125736 is divisible by (3 × 8), i.e. 24.

6. Let A, B, C represent their respective weights. Then, we have:
A + B + C = (45 x 3) = 135 .... (i)
A + B = (40 x 2) = 80 .... (ii)
B + C = (43 x 2) = 86 ....(iii)
Adding (ii) and (iii), we get: A + 2B + C = 166 .... (iv)
Subtracting (i) from (iv), we get : B = 31.
B's weight = 31 kg.

7. Required number of students = HCF of 1001 and 910
= 91

8. Required number of ways = $({}^7C_5 \times {}^3C_2) = ({}^7C_2 \times {}^3C_1) = [\frac{7 \times 6}{2 \times 1} \times 3] = 63$

9. Here, n(S) = 52
Let E = event of getting a queen of club or a king of heart.
Then, n(E) = 2
P (E) = $\frac{n\ E}{n\ S} = \frac{2}{52} = \frac{1}{26}$

10. Mother's age when Ayesha's brother was born = 36 years
Father's age when Ayesha's brother was born = (38 + 4) years
= 42 years
Required difference = (42 36)
= 6 years

11. Let the original price = Rs.100
Then, C.P. = Rs.90

S.P. = 130% of Rs.90 = Rs.[$\frac{130}{100}$ × 90]
= Rs.117
Required percentage = (117 100)%
= 17%

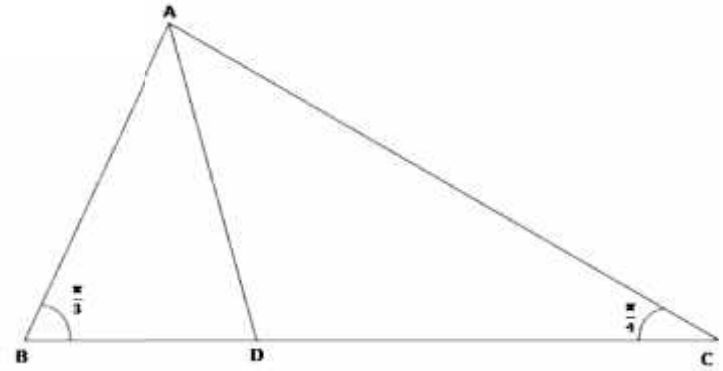
12. 1^2 $2^2 + 3^2$ $4^2 + 5^2 + 6^2 + 7^2$ 8^2 + ….
= (1 2) (1 + 2) + (3 4) (3 + 4) + (5 6) (5 + 6) + (7 + 8) (7 8) + ….
= (1 + 2) (3 + 4) (5 + 6) ….
= [(1 + 2) + (3 + 4) + (5 + 6) + ….]
= [1 + 2 + 3 + 4 + 5 + 6 + ….] = $\frac{n\,(n+1)}{2}$

13. 6 × 24 = 6 + 24 + $\sqrt{6 \times 24}$
= 30 + $\sqrt{144}$
= 30 + 12
= 42

14. Remaining distance = 3 km./hr.
Remaining time = [$\frac{1}{3}$ × 45] min
= 15 min
= $\frac{1}{4}$
Required speed = (3 × 4) km./hr.
= 12 km./hr.

15. B's 10 day's work = [$\frac{1}{15}$ × 10] = $\frac{2}{3}$
Remaining work = [1 $\frac{2}{3}$] = $\frac{1}{3}$
Now, $\frac{1}{18}$ work is done by A in 1 day.
$\frac{1}{3}$ work is done by A in [18 × $\frac{1}{3}$] = 6 days.

16. $\frac{BD}{DC} = \frac{1}{3}$ [Given]



From ΔABD,
BD/sin (∠BAD) = AD/sin (π/3) … (1)
From ΔACD,
DC/sin (∠CAD) = AD/sin (π/4) … (2)
Now, divide (1) by (2) and use BD/DC = 1/3
⇒ sin (∠BAD) / sin (∠CAD) = $\frac{1}{\sqrt{6}}$

17. Test the ratio of the lengths to see if it fits the 3n : 4n : 5n ratio.
? : 12 : 15 = ? : 4 (3) : 5 (3)

Yes, it is a 3 - 4 - 5 triangle for n = 3
Calculate the third side 3n = 3 × 3 = 9
The length of the side is 9 inches.

18. Speed in still water $= \frac{1}{2}(11 + 5)$ km./hr.
$= 8$ km./hr.

19. (40 + 10) = 50% (from first chart)

20. 40 : 15 = 8 : 3

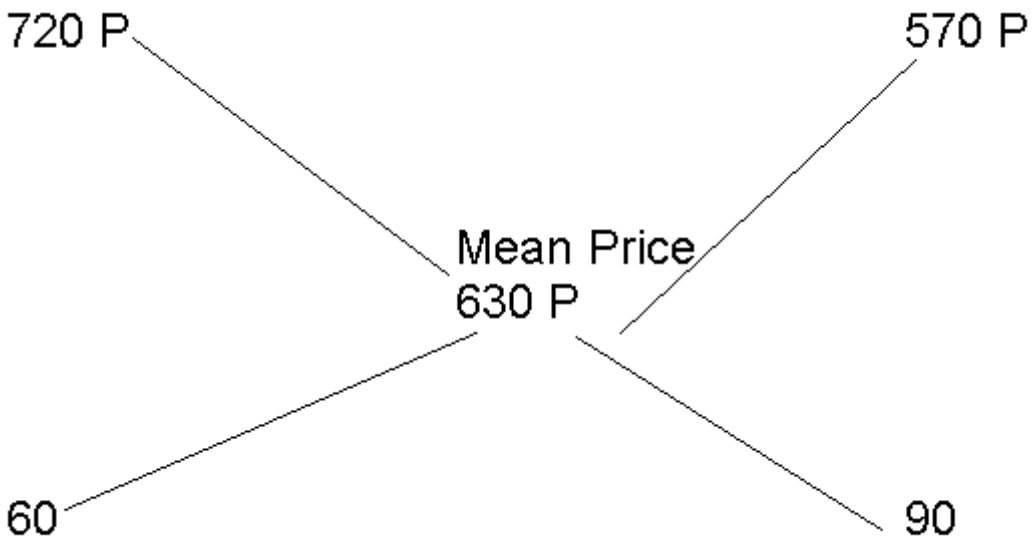
21. Tourist traffic from other countries to Swiz is 20%
Amongst this 20%, 25% of traffic from India.
So, 25% of 20% = 5% corresponds to the Indian traffic in Switzerland.
5% corresponds to Switzerland's 25 lakh. Hence 15% will be 75 lakh.

22. The year 2004 is a leap year. It has 2 odd days.
So, the day on 8th Feb. 2004 is 2 days before the day on 8th Feb. 2005
Hence, this day is Sunday.

23. Angle traced by hour hand in $\frac{125}{12}$ hours = $[\frac{360}{12} \times \frac{125}{12}]° = 312\frac{1°}{2}$
Angle traced by minute hand in 25 min. = $[\frac{360}{60} \times 25]° = 150°$
So, reflex angle = 360° $[312\frac{1}{2}$ $150]° = 360°$ $162\frac{1°}{2} = 197\frac{1}{2}$

24. By the rule of allegation:

Cost of 1 kg of 1st kind — Cost of 1 kg of 2nd kind



So, required ratio = 60 : 90 = 2 : 3

25. Let the slower pipe alone fill the tank in x minutes. Then, faster pipes will fill it in $\frac{x}{3}$ minutes
Therefore, $\frac{1}{x} + \frac{3}{x} = \frac{1}{36}$

$\frac{4}{x} = \frac{1}{36}$
x = 144 min.

26. Time = 9 months = $\frac{3}{4}$ years
So, S.I. = Rs. [16800 × $\frac{25}{4}$ × $\frac{3}{4}$ × $\frac{1}{100}$] = Rs.787.50

27. Let their marks be (x + 9) and x.
Then, x + 9 = $\frac{56}{100}$ (x + 9 + x)
25 (x + 9) = 14 (2x + 9)
3x = 99
x = 33
So, their marks are 42 and 33.

28. $\frac{4x \times 4x}{x \times x} = \frac{16}{1}$ = 16 : 1

29. Let the two consecutive even integers be 2n and (2n + 2). Then
$(2n + 2)^2 - (2n)^2$ = (2n + 2 + 2n) (2n + 2 − 2n)
= 2 (4n + 2) = 4 (2n + 1), which is divisible by 4.

30. Required Average = $[\frac{55 \times 50 + 60 \times 55 + 45 \times 60}{55 + 60 + 45}]$
= $[\frac{2750 + 3300 + 2700}{160}]$
= $\frac{8750}{160}$
= 54.68

31. HCF of two numbers divides their LCM exactly. Clearly, 8 is not a factor 60.

32. $5x^2 - 13xy + 6y^2 = 0$ $5x^2 - 10xy - 3xy + 6y^2 = 0$
5x (x − 2y) − 3y (x − 2y) = 0
(x − 2y) (5x − 3y) = 0
x = 2y pr 5x = 3y $\frac{x}{y} = \frac{2}{1}$ or $\frac{x}{y} = \frac{3}{5}$
So, (x : y) = (2b : 1) or (3 : 5)

33. A : B : C = 7 : 8 : 11
Hire charges paid by B = Rs. [520 × $\frac{8}{26}$]
= Rs.160

34. The word 'OPTICAL' contains 7 different letters.
When the vowels OIA are always together, they can be supposed to form one letter.
Then, we have to arrange the letters PTCL (OIA).
Now, 5 letters can be arranged in 5! = 120 ways
The vowels (OIA) can be arranged among themselves in 3! = 6 ways
Required number of ways = (120 × 6) = 720

35. Clearly, there are 52 cards, out of which there are 12 face cards.
P (getting a face card) = $\frac{12}{52}$ = $\frac{3}{13}$
36. Option B
37. Option E

A	B	C	D	E	F	G	H	I	J	K	L	M
Z	Y	X	W	V	U	T	S	R	Q	P	O	N

38. Option A

A	B	C	D	E	F	G	H	I	J	K	L	M
1	2	3	4	5	6	7	8	9	10	11	12	13
Z	Y	X	W	V	U	T	S	R	Q	P	O	N
26	25	24	23	22	21	20	19	18	17	16	15	14

D - 4
E – 5 4 + 5 + 5 + 16 = 30 × 2 = 60
E – 5
P – 16
RABIT 18 + 1 + 2 + 9 + 20 = 50 × 2 = 100
Similarly, HAIR = 8 + 1 + 9 + 18 = 36 × 2 = 72

39. Option A
40. Option E
300 + 28 5 × 32 ÷ 14
After changing the sign = 300 28 × 5 ÷ 32 + 14
300 + 14 28×5/32
314 4.375 = 309.625

41. Option A
S O V E R E I G N
G E N E R I O S V
3rd to the right of the 5th from the right

42. Option A

8	9	3	6	4	2		
Increasing		2	3	4	6	8	9
Decreasing		9	8	6	4	3	2

43. Option A

T	R	A	N	S	C	R	I	B	E
20	18	1	14	19	3	18	9	2	5

44. Option A
45. Option E

8642	345	642	345	642	34	4

46. Option C
47. Option D
48. Option B
(SQT) > R > P …. (i)
T < S < Q …. (ii)
From Eq. (i) and (ii)
Q > S > T > R > P

49. Option C
The colour of unripe Banana is green and according to question green is white.

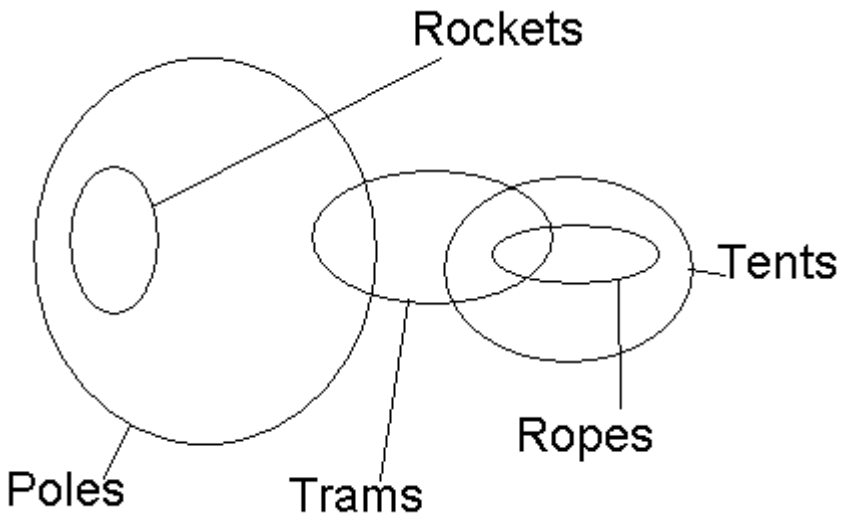
50. Option B
According to Mohit birthday = 16, 17, 18
According to Mohit's sister birthday = 18, 19
Common day = 18th April

51. Option C
    Highest number = 846
    Addition of first two digits = 8 + 4 = 12

52. Option E
    258 379 486 942 735
    2nd highest number = 735 and 3rd digit is 5

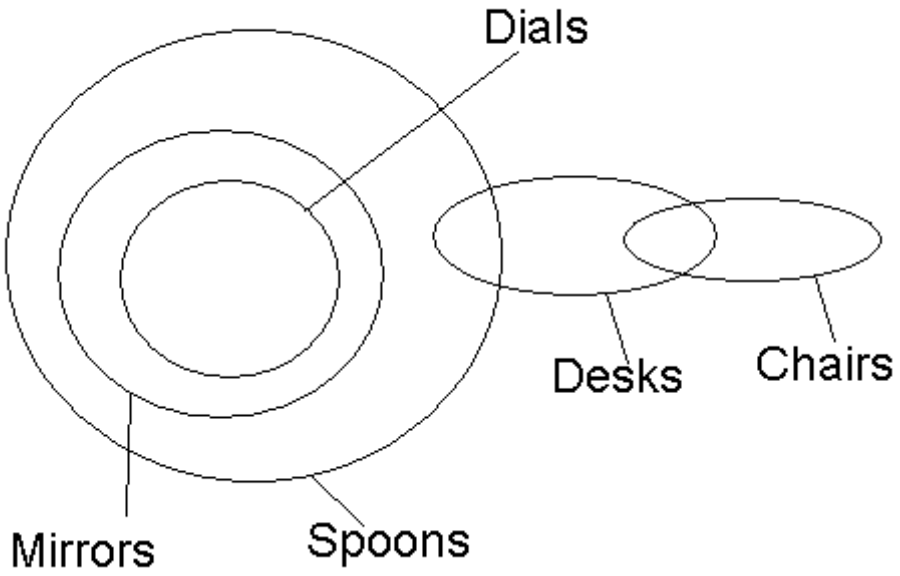
53. Option C
    825 937 648 294 573
    3rd highest number = 648 and middle digit is 4

54. Option E
55. Option B
56. Option D



    Conclusions: I. True
    II. False
    III. False
    IV. True
    Only I and IV follow

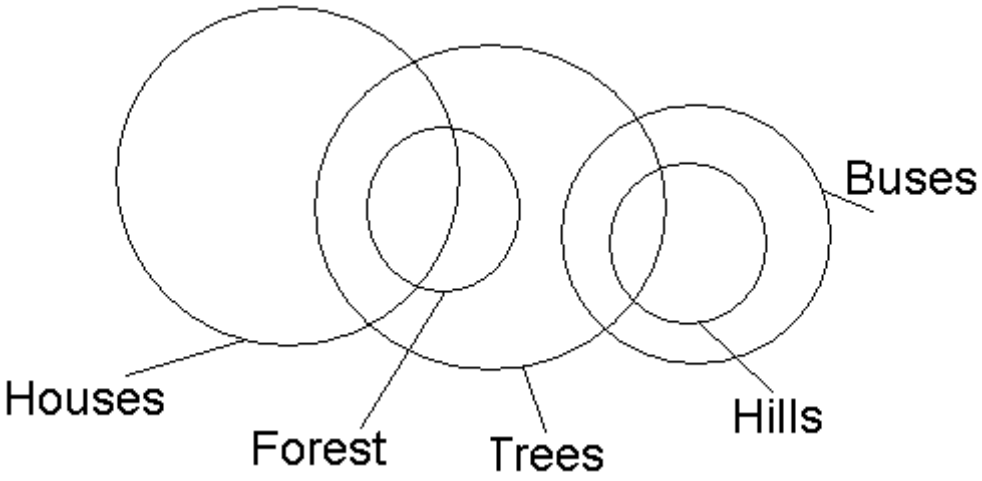
57. Option C



Conclusions: I. False
II. True
III. False
IV. False

Only II follows

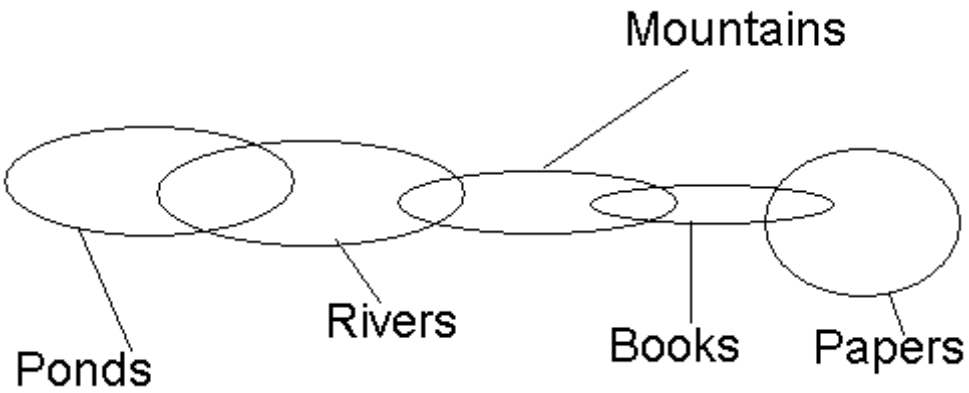
58. Option A



Conclusions: I. True
II. True
III. False
IV. False

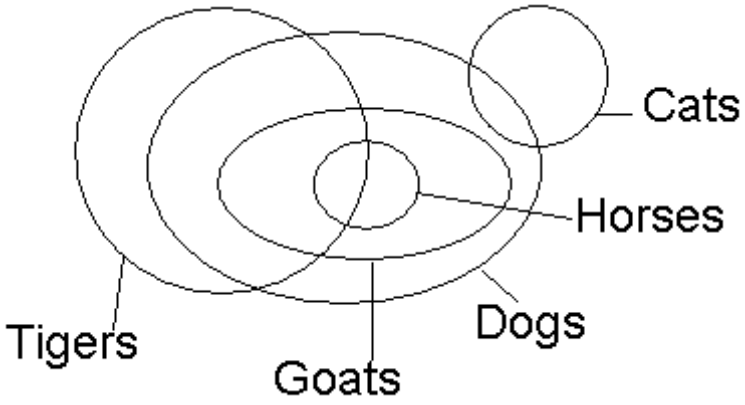
Only I and II follow

59. Option B



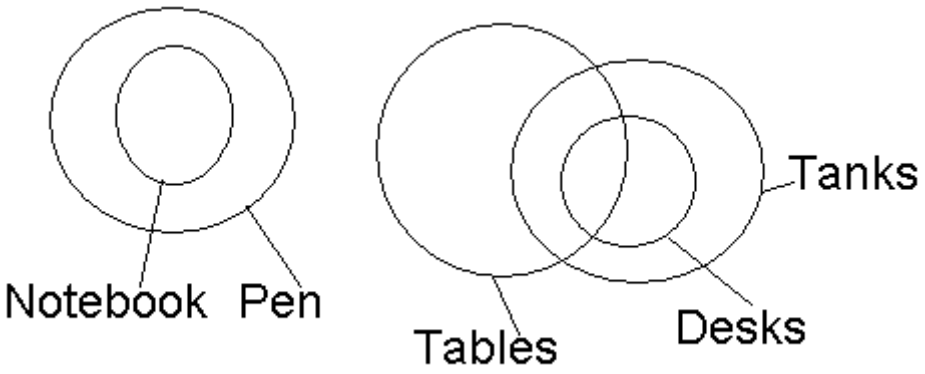
Conclusions: I. False
II. False
III. False
IV. True
Either II or IV follows

60. Option C



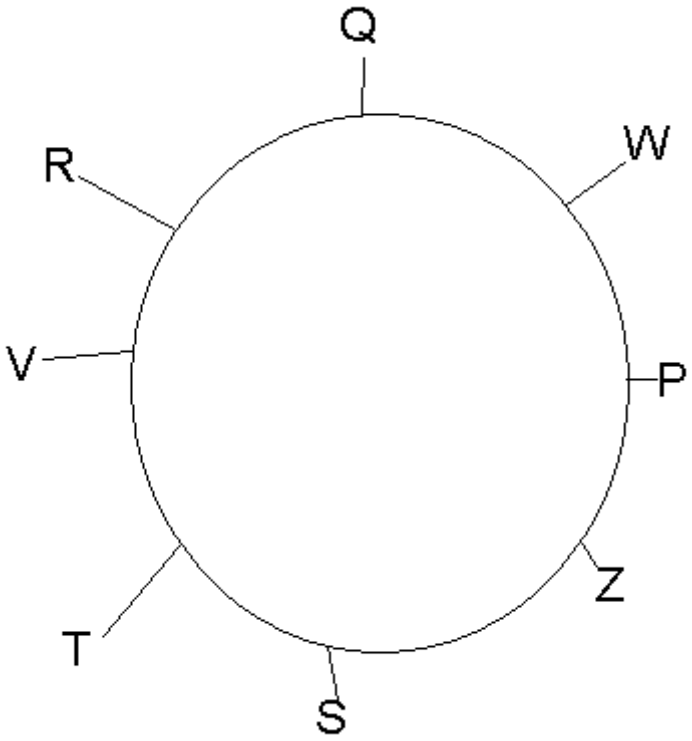
Conclusions: I. False
II. True
III. True
IV. False
Only II and III follow

61. Option E



Conclusions: I. False
II. False
III. True

IV. True
Either I or IV and III follow



62. Option E
63. Option B
64. Option D
65. Option C
66. Option A
    W 7 @ I R P 3 9 B A $ 4 H D 5 © M E 2 % T * 8 ! U Q N 1 V 6 # K F
67. Option A
68. Option A
69. Option B
70. Option D
71. Option B
72. Option A
73. Option D
74. Option D
75. Option E
76. Option C
77. Option A
78. Option E
79. Option B
80. Option D
81. Option A
82. Option E
83. Option D
84. Option E
85. Option B
86. Option D
87. Option A

88. Option D
89. Option E
90. Option B
91. Option A
92. Option D
93. Option E
94. Option B
95. Option D
96. Option C
97. Option E
98. Option C
99. Option B
100. Option C