9

Practice Set

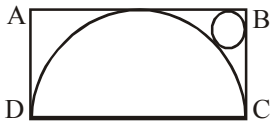## ARITHMETIC

1. If $3\frac{4}{5}$ is subtracted from $6\frac{3}{5}$ and difference is multiplied by 355 then what will be the final number?
   (a) 1004 (b) 884
   (c) 774 (d) 994

2. How many times must 79 be subtracted from 5×10^4 so as to obtain 43759?
   (a) 77 (b) 78
   (c) 79 (d) 80

3. In a class of 65 students and 4 teachers, each student got sweets that are 20% of the total number of students and each teacher got sweets that are 40% of the total number of students. How many sweets were there?
   (a) 845 (b) 897
   (c) 949 (d) 104

4. An order was placed for supply of carpet of breadth 3 metres, the length of carpet was 1.44 times of breadth. Subsequently the breadth and length were increased by 25 and 40 per cent respectively. At the rate of ₹45 per square metre, what would be the increase in the cost of the carpet?
   (a) ₹1020.6 (b) ₹398.8
   (c) ₹437.4 (d) ₹583.2

5. In a mixture of milk and water the proportion of water by weight was 75% if in the 60 gms mixture 15 gms water was added, what would be the percentage of water in the new mixture?
   (a) 75% (b) 80%
   (c) 90% (d) 100%

6. The sum of five numbers is 290. The average of the first two numbers is 48.5 and the average of last two numbers is 53.5. What is the third number?
   (a) 72 (b) 84
   (c) 96 (d) 86

7. The average weight of a class of 15 boys and 10 girls is 38.4 kg. If the average weight of the boys is 40 kg, then what is the average weight of the girls?
   (a) 36.5 kg (b) 35 kg
   (c) 36 kg (d) 34.6 kg

8. The angle of elevation of a cloud from a point 200 m above a lake is 30° and the angle of depression of its reflection in the lake is 60°. The height of the cloud is
   (a) 200 m (b) 300 m
   (c) 400 m (d) 600 m

9. A and B can finish a work in 10 days while B and C can do it in 18 days. A started the work, worked for 5 days, then B worked for 10 days and the remaining work was finished by C in 15 days. In how many days could C alone have finished the whole work?
   (a) 30 days (b) 15 days
   (c) 45 days (d) 24 days

10. ABCD is a cyclic quadrilateral in which BC ∥ AD, $\angle ADC = 110°$ and $\angle BAC = 50°$ find $\angle DAC$
    (a) 60° (b) 45°
    (c) 90° (d) 120°

11. In a triangle ABC, the internal bisector of the angle A meets BC at D. If AB = 4, AC = 3 and $\angle A$ 60 , then the length of AD is

    (a) $2\sqrt{3}$ (b) $\dfrac{12\sqrt{3}}{7}$

    (c) $15\sqrt{\dfrac{3}{8}}$ (d) $6\sqrt{\dfrac{3}{7}}$

12. The figure shows a rectangle ABCD with a semi-circle and a circle inscribed inside it as shown. What is the ratio of the area of the circle to that of the semi-circle?

    (a) $(\sqrt{2}-1)^2$ (b) $2(\sqrt{2}-1)^2$

    (c) $(\sqrt{2}-1)^2/2$ (d) None of these

13. On a semicircle with diameter AD, chord BC is parallel to the diameter. Further, each of the chords AB and CD has length 2, while AD has length 8. What is the length of BC?
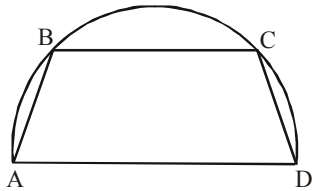
(a) 7.5   (b) 7
(c) 7.75   (d) None of these

14. ABCD is a square, F is the mid-point of AB and E is a point on BC such that BE is one-third of BC. If area of ΔFBE $= 108\,m^2$, then the length of AC is:

(a) $63\,m$ (b) $36\sqrt{2}\,m$

(c) $63\sqrt{2}\,m$ (d) $72\sqrt{2}\,m$

15. If $a^2 = b + c,\ b^2 = c + a,\ c^2 = a + b$, then the value

of $\dfrac{1}{1\ a}\ \dfrac{1}{b\ 1}\ \dfrac{1}{1\ c}$

(a) abc (b) $a^2\ b^2\ c^2$
(c) 1   (d) 0

16. If $x + \dfrac{1}{y} = 1$ and $y + \dfrac{1}{z} = 1$, what is the value of

xyz?
(a) 1   (b) -1

(c) 0   (d) $\dfrac{1}{2}$

17. If p = 999, then the value of

$\sqrt[3]{p(p^2\ 3p\ 3)\ 1}$ is

(a) 1000   (b) 999
(c) 998   (d) 1002

18. If θ is an acute angle such that $\tan^2 \theta = \dfrac{8}{7}$, then

the value of $\dfrac{1+\sin\theta}{1+\cos\theta}\ \dfrac{1-\sin\theta}{1-\cos\theta}$ is

(a) $\dfrac{7}{8}$ (b) $\dfrac{8}{7}$

(c) $\dfrac{7}{4}$ (d) $\dfrac{64}{49}$

19. If $3\cos\theta = 5\sin\theta$, then the value of

$\dfrac{5\sin\theta - 2\sec^3\theta + 2\cos\theta}{5\sin\theta + 2\sec^3\theta - 2\cos\theta}$ is equal to
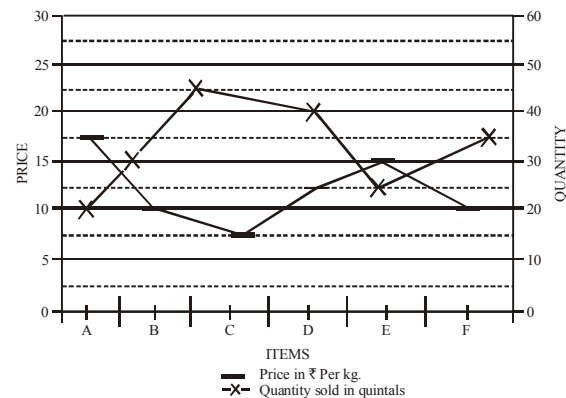
(a) $\dfrac{271}{979}$ (b) $\dfrac{376}{2937}$

(c) $\dfrac{542}{2937}$ (d) None of these

20. If $a\cos\theta - b\sin\theta = c$, then $a\cos\theta + b\sin\theta =$?

(a) $\sqrt{a^2\ b^2\ c^2}$ (b) $\sqrt{a^2\ b^2 - c^2}$

(c) $\pm\sqrt{c^2 - a^2 - b^2}$ (d) None of these

DIRECTIONS (Qs. 21-23) : *Study the following graph carefully to answer these questions.*

Quantity of various items sold and price per kg.

Price in ₹ Per kg.
Quantity sold in quintals

21. If the quantity sold of item D increased by 50% and the price reduced by 10%, what was the total value of the quantity sold for Item D?
(a) ₹675   (b) ₹6750
(c) ₹67550   (d) ₹67500

22. Approximately, what is the average price per kg of items A, B and C ?
(a) ₹9.50   (b) ₹8
(c) ₹7.50   (d) ₹11.6

23. What is the ratio between the total values of quantity sold for items E and F respectively? .
(a) 15 : 14   (b) 3 : 2
(c) 5 : 7   (d) 7 : 5

24. From the top of a cliff 200 m high, the angles of depression of the top and bottom of a tower are observed to be 30° and 45°, respectively. What is the height of the tower?

(a) 400m   (b) $400\sqrt{3}\,m$

(c) $400/\sqrt{3}\,m$ (d) None of these

25. For a plot of land of 100 m × 80 m, the length to be raised by spreading the earth from stack of a rectangular base 10 m × 8 m and vertical section being a trapezium of height 2 m. The top of the stack is 8 m × 5 m. How many centimeters can the level raised?
(a) 3 cm   (b) 2.5 m
(c) 2 cm   (d) 1.5 cm

26. The divisor is 25 times the quotient and 5 times the remainder. If the quotient is 16, the dividend is :
(a) 6400   (b) 6480
(c) 400   (d) 480

27. Find the greatest number of five digits which is a perfect square.
(a) 99683   (b) 99999
(c) 99856   (d) 99865

28. What greatest number can be subtracted from 10,000 so that the remainder may be divisible by 32, 36, 48 and 54 ?
(a) 9136   (b) 9191
(c) 9933   (d) 9216

29. The average marks in Science subject of a class of 20 students is 68. If the marks of two students were misread as 48 and 65 of the actual marks 72 and 61 respectively, then what would be the correct average ?
(a) 68.5   (b) 69
(c) 69.5   (d) 70

30. A shopkeeper's price is 50% above the cost price. If he allows his customer a discount of 30% what profit does he make?
(a) 5%   (b) 10%
(c) 15%   (d) 20%

31. Populations of two villages X and Y are in the ratio of 5 : 7 respectively. If the population of village Y increases by 25000 and the population of village X remains unchanged the respective ratio of their populations becomes 25 : 36. What is the population of village X?
(a) 6,25,000   (b) 6,75,000
(c) 8,75,000   (d) 9,00,000

32. If 15 women or 10 men can complete a project in 55 days, in how many days will 5 women and 4 men working together complete the same project ?
(a) 75   (b) 8
(c) 9   (d) 85

33. A goods train leaves a station at a certain time and at a fixed speed. After 6 hours, an express train leaves the same station and moves in the same direction at a uniform speed of 90 kmph. This train catches up the goods train in 4 hours. Find the speed of the goods train.
(a) 36 kmph   (b) 40 kmph
(c) 30 kmph   (d) 42 kmph

34. A metal cube of edge 12 cm is melted and formed into three smaller cubes. If the edges of two smaller cubes are 6 cm and 8 cm, then find the edge of the third smaller cube.
(a) 10 cm   (b) 14 cm
(c) 12 cm   (d) 16 cm

35. A shopkeeper buys 50 dozen eggs at ₹ 4 per dozen. Out of them, 40 eggs were found broken. At what rate should he sell the remaining eggs per dozen so as to gain 5% on the whole?
(a) ₹ 4   (b) ₹ 4.25
(c) ₹ 4.50   (d) ₹ 5.25

36. Three fill pipes A, B and C can fill separately a cistern in 3, 4 and 6 minutes respectively. A was opened first. After 1 minute, B was opened and after 2 minutes from the start of A, C was also opened. Find the time when the cistern will be full?
(a) $2\frac{1}{9}$ min   (b) $4\frac{1}{2}$ min
(c) $3\frac{3}{4}$ min   (d) None of these

37. A train 108 m long moving at a speed of 50 km/h crosses a train 112 m long coming from the opposite direction in 6 seconds. The speed of the second train is
(a) 48 km/h   (b) 54 km/h
(c) 66 km/h   (d) 82 km/h

38. If y : x = 4 : 15, then the value of $\left(\dfrac{x-y}{x \quad y}\right)$ is
(a) $\dfrac{11}{19}$ (b) $\dfrac{19}{11}$
(c) $\dfrac{4}{11}$ (d) $\dfrac{15}{19}$

39. If $x + \dfrac{1}{4x} \quad \dfrac{3}{2}$, find the value of $8x^3 + \dfrac{1}{8x^3}$.
(a) 18   (b) 36
(c) 24   (d) 16

40. If $\tan\theta = -\dfrac{1}{\sqrt{7}}$, then $\dfrac{\csc^2\theta - \sec^2\theta}{\csc^2\theta + \sec^2\theta} = ?$
(a) $-\dfrac{3}{4}$ (b) $-\dfrac{2}{3}$
(c) $\dfrac{2}{3}$ (d) $\dfrac{3}{4}$

GENERAL INTELLIGENCE & REASONING

41. 'Hygrometer' is related to 'Humidity' in the same way as 'Sphygmomanometer' is related to
  (a) Pressure   (b) Blood Pressure
  (c) Precipitation   (d) Heart Beat

42. HEATER : KBDQHO : : COOLER : ?
  (a) ALRHV   (b) FLRIHO
  (c) FLIRHO   (d) FRLIHO

43. 12 : 30 : : 20 : ?
  (a) 25   (b) 32
  (c) 35   (d) 42

DIRECTIONS (Qs. 44 to 45) : *Find the odd word/ letters/number pair from the given alternatives.*

44. (a) Microbe   (b) Microflim
  (c) Microphone   (d) Microscope

45. (a) BDGK   (b) JLOS
  (c) HJMQ   (d) MORU

DIRECTIONS (Qs. 46 - 47) : *Complete the given series.*

46. YEB, WFD, UHG, SKI, (?)
  (a) QOL   (b) TOL
  (c) QGL   (d) QNL

47. 2   12   36   80   150   ?
  (a) 194   (b) 210
  (c) 252   (d) 258

48. In a certain code language OUTCOME is written as OQWWEQOE. How is REFRACT written in that code?
  (a) RTGITCET   (b) RTGTICET
  (c) RTGITECT   (c) RTGICTET

49. If A = 1, PAT = 37 then TAP = ?
  (a) 73   (b) 37
  (c) 36   (d) 38

50. Introducing Rajesh, Neha said, "His brother's father is the only son of my grand father". How Neha is related to Rajesh?
  (a) Sister   (b) Daughter
  (c) Mother   (d) Niece

51. Ruchi's house is to the right of Vani's house at a distance of 20 metres in the same row facing North. Shabana's house is in the North- East direction of Vani's house at a distance of 25 metres. Determine that Ruchi's house is in which direction with respect of Shabana's house?
  (a) North-East   (b) East
  (c) South   (d) West

52. If the positions of the first and the fifth digits of the number 83721569 are interchanged, similarly, the positions of the second and the sixth digits are interchanged, and so on, which of the following will be the third from the right end after the rearrangement?
  (a) 6   (b) 3
  (c) 2   (d) 7

53. Some boys are sitting in a line. Mahendra is on 17th place from left and Surendra is on 18th place from right. There are 8 boys in between them. How many boys are there in the line?
  (a) 43   (b) 42
  (c) 41   (d) 44

DIRECTIONS (Qs. 54-55): *In the following questions find the missing number*

54.
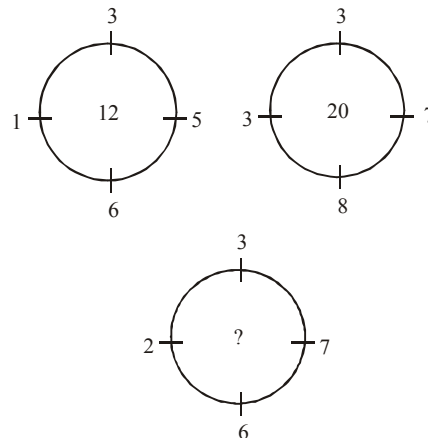
  (a) 10   (b) 15
  (c) 20   (d) 25

55.

21	24	36
11	14	12
3	?	4
77	112	108

  (a) 2   (b) 4
  (c) 3   (d) 5

DIRECTIONS (Q. 56): *Arrange the following in a logical order:*

56. 1. Millenium   2. Diamond Jubilee
      3. Silver Jubilee   4. Centenary
      5. Golden Jubilee
  (a) 2, 3, 5, 4, 1   (b) 2, 5, 3, 1, 4
 (c) 3, 5, 2, 4, 1   (d) 2, 3, 5, 1, 4

DIRECTIONS (Q. 57) : *In the following questions, a group of letters is given which are numbered 1, 2, 3, 4, 5 and 6. Below a re given four alternatives containing combinations of these numbers. Select that combination of numbers so that letters arranged accordingly form a meaningful word.*

57. INLASG
1 2 3 4 5 6
(a) 6, 1, 3, 5, 4, 2   (b) 5, 1, 6, 2, 4, 3
(c) 3, 4, 6, 1, 2, 5   (d) 2, 4, 3, 6, 1, 5

58. In the following venn diagram identify the letter which denotes players who are also doctors but not artist.
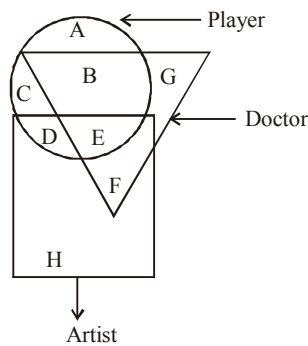
(a) B+E   (b) E
(c) B   (d) A

DIRECTIONS (Q. 59) : *In question the belows is given two statements followed by two conclusions. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given statements disregarding commonly know facts. Given Answer.*

Give answer (a) If only conclusion I follows.
Give answer (b) if only conclusion II follows.
Give answer (c) if either I or II follows.
Give answer (d) if neither I nor II follows.

59. Statements:
All terrorists are human.
All humans are bad.
Conclusions:
I.   All terrorists are bad.
II.   No human can be a terrorist.

60. Which one of the following is correct?
6 * 4 * 9 * 15
(a) ×, =, −   (b) ×, −, =
(c) =, ×, −   (d) −, ×, =

61. If '−' stands for '+', '+' stands for '×', '×' stands for '−' then which one of the following is not correct ?
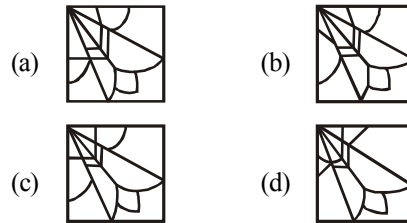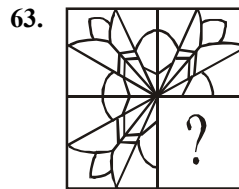(a) $22 + 7 - 3 \times 9 = 148$ (b) $33 \times 5 - 10 + 20 = 228$
(c) $7 + 28 - 3 \times 52 = 127$ (d) $44 - 9 + 6 \times 11 = 87$

62. The four different positions of a dice are given below: Find the number on the face opposite the face showing 6?
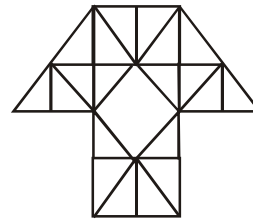

(i)   (ii)   (iii)   (iv)
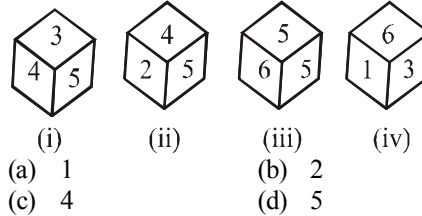
(a) 1   (b) 2
(c) 4   (d) 5

DIRECTIONS (Q. 63): *Which answer figure will complete the pattern in the question figure ?*

63.

(a)   (b)

(c)   (d)

64. How many triangles are there in the given figure?

(a) 29   (b) 38
(c) 40   (d) 35

DIRECTIONS (Qs. 65) : *In the following question a set of three figures A, B and C showing a sequence of folding of a piece of paper. Fig. (C) shows the manner in which the folded paper has been cut. These three figures are followed by four answer figures from which you have to choose a figure which would most closely resemble the unfolded form of fig. (C).*

65.

(A)   (B)   (C)

(a)   (b)   (c)   (d)
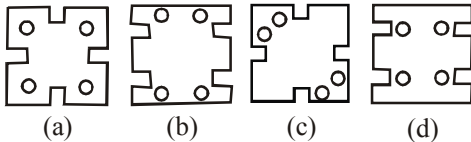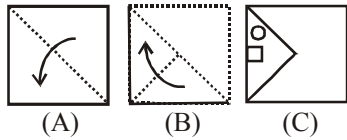
66. If 'yellow' means 'green', 'green' means 'white', white means 'red', 'red' means 'black', 'black' means 'blue' and 'blue' means 'violet', which of the following represents the colour of human blood ?
(a) black   (b) violet
(c) red   (d) None of these

67. A trader in order to code the prices of article used the letters of PSICHOLAZY in the form of '0 to 9' respectively. Which of the following code stands for ₹ 875.50 ?
(a) AIL.HP   (b) AIL.HS
(c) ZYA.HO   (d) None of these

DIRECTIONS (Qs. 68-69) : *Study the information given below and answer the questions following it:*

Mohan is son of Arun's father's sister. Prakash is son of Reva, who is mother of Vikash and grandmother of Arun. Pranab is father of Neela and grandfather of Mohan. Reva is wife of Pranab.

68. How is Mohan related to Reva ?
(a) Grandson   (b) Son
(c) Nephew   (d) Data inadaequate

69. How is Vikash's wife related to Neela ?
(a) Sister   (b) Niece
(c) Sister-in-law   (d) Data inadaequate

DIRECTIONS (Qs. 70-72) : *Study the following information carefully and answer the given questions.*

If A + B means A is the father of B
If A × B means A is the sister of B
If A $ B means A is the wife of B
If A % B means A is the mother of B
If A ÷ B means A is the son of B

70. What should come in place of the question mark, to establish that J is the brother of T in the expression?
J ÷ P % H ? T % L
(a) ×   (b) ÷
(c) $ (d) Either ÷ or ×

71. Which among the given expressions indicate that M is the daughter of D?
(a) L % R $ D + T × M
(b) L + R $ D + M × T
(c) L % R % D + T ÷ M
(d) D + L $ R + M × T

72. Which among the following options is true if the expresssion 'I + T % J × L ÷ K' is **definitely true**?
(a) L is the daughter of T
(b) K is the son-in-law of I
(c) I is the grandmother of L
(d) T is the father of L

73. Nishu starting from a fixed point goes 15 km towards North and then after turning to his right he goes 15 km. Then he goes 10, 15 and 15 metres after turning to his left each time. How far is he from his starting point?
(a) 5 metres   (b) 10 metres
(c) 20 metres   (d) 15 metres

74. In a class of 90, where girls are twice that of boys, Shridar ranked fourteenth from the top, if there are 10 girls ahead of Shridar, how many boys are after him in rank?
(a) 23   (b) 26
(c) 25   (d) 22

DIRECTIONS (Qs. 75-76) : *These questions are based on the following information.*

Six students P, Q, R, S, T and V are the top six rankers of the class. No two persons got the same rank. The student who got the highest marks is given rank 1 and the student who got the least marks is given rank 6. Q got less marks than both R and U. P got more marks than T but less than S. Q got the second least rank and U got the second highest rank, R got less marks than P.

75. _____ got the 3rd rank.
(a) S   (b) P
(c) R   (d) T

76. _____ got the 6th rank.
(a) T   (b) P
(c) R   (d) S

77. In a certain code, a number 13479 is written as AQFJL and 2568 is written as DMPN. How is 396824 written in that code?
(a) QLPNMJ   (b) QLPNMF
(c) QLPMNF   (d) QLPNDE

DIRECTIONS (Qs. 78-80) : *Study the following information to answer the given questions:*

In a certain code, 'he was singing good' is written as 'la pa ho ta', 'good was the aim' is written as 'zo ho ji la', 'singing at the stadium' is written as 'ma ta ku ji' and 'was this a stadium' is written as 'ku bi ho vi'.

78. Which of the following represents 'the aim stadium'?
(a) ma pa ji   (b) ku zo pa
(c) ku ji zo   (d) ji zo ma

79. Which of the following may be the code for 'she was singing'?
(a) ro ta zo   (b) ta ji ku
(c) ho bo ji   (d) ho ta bo

80. What is the code for 'at'?
(a) ku   (b) ji
(c) ma   (d) zo

GENERAL AWARENESS

81. Ashtapradhan was a council of ministers:
(a) in the Gupta administration
(b) in the Chola administration
(c) in the Vijayanagar administration
(d) in the Maratha administration

82. Which one among the following newspapers was published first?
(a) The Madras Mail
(b) The Indian Social Reformer
(c) The Bengal Gazette
(d) The Times of India

83. Jiatrang Movement started in
(a) Nagaland   (b) Tripura
(c) Manipur   (d) Mizoram

84. Which term is not used in the preamble of the Indian constitution ?
(a) Republic   (b) Integrity
(c) Federal   (d) Socialist

85. The Prime Minister of India is the head of the
(a) State Government
(b) Central Government
(c) Both the State and Central Government
(d) None of them

86. How many types of writs can be issued by the supreme court?
(a) 2   (b) 3
(c) 5   (d) 6

87. The Indian Economy is characterised by
(a) pre-dominance of agriculture
(b) low per capita income
(c) Massive unemployment
(d) All of the above

88. The Green Revolution in India has contributed to
(a) inter-regional inequality
(b) inter-class inequality
(c) inter-crop inequality
(d) all of the above

89. Core industries include
(a) basic industries
(b) industries catering to defence requirements
(c) critical industries
(d) all the above

90. Which zone of a candle flame is the hottest ?
(a) Dark innermost zone
(b) Outermost zone
(c) Middle luminous zone
(d) Central zone

91. Which one of the following is used to remove Astigmatism for a human eye?
(a) Concave lens   (b) Convex lens
(c) Cylindrical lens   (d) Prismatic lens

92. Which one of the following is a mixed fertilizer?
(a) Urea
(b) CAN
(c) Ammonium sulphate
(d) NPK

93. The most reactive among the halogens is
(a) Fluorine   (b) Chlorine
(c) Bromine   (d) Iodine

94. Which one of the following is a modified stem?
(a) Carrot   (b) Sweet potato
(c) Coconut   (d) Potato

95. 'Athlete's Foot' is a disease caused by
(a) Bacteria   (b) Fungus
(c) Protozoan   (d) Nematode

96. Which one of the following is present in chlorophyll which gives a green colour to plant leaves?
(a) Calcium   (b) Magnesium
(c) Iron   (d) Manganese

97. In human beings, the opening of the stomach into the small intestine is called
(a) caecum   (b) ileum
(c) oeaophagus   (d) pylorus

98. Which of the dance forms enlisted in UNESCO?
(a) Mudiyeltu   (b) Bidesia
(c) Maach   (d) Yakshagan

99. 'India of our Dreams' is a book written by
(a) Dr. S. Radhakrishnan
(b) Dr. C. Subramanian
(c) M.V. Kamath
(d) Dr. Rajendra Prasad

100. With which game is 'Bully' associated ?
(a) Cricket   (b) Football
(c) Golf   (d) Hockey

101. Which amongst the following Abbreviations stands for organization related to Indian space programme?
(a) NASA   (b) ISO
(c) ISRO   (d) NSAT

102. Indian Standard Time relates to
  (a) 75.5º E longitude   (b) 82.5º E longitude
  (c) 90.5º E longitude   (d) 0º longitude

103. In which Eco-system Grassland is included ?
  (a) Marine   (b) Fresh water
  (c) Terrestrial   (d) Artificial

104. US embassy launched a scholarship program for women of which country ?
  (a) Myanmar   (b) Afghanistan
  (c) Sri Lanka   (d) Bangladesh

105. What was the theme for the 10th National Statistics Day that was celebrated in June 2016.
  (a) Social Development
  (b) Agriculture and Farmers' Welfare
  (c) Better Data, Better Lives
  (d) Statistics for all, with all

106. What is a file?
  (a) A file is a section of main storage used to store data
  (b) A file is a collection of information that has been given a name and is stored in secondary memory
  (c) A file is the part of a program that is used to describe what the program should do
  (d) A file is another name for floppy disk

107. The .... key and the .... key can be used in combination with other keys to perform shortcuts and special tasks.
  (a) Control, Alt
  (b) Function, toggle
  (c) Delete, Insert
  (d) Caps Lock, Num Lock

108. How is it possible that both programs and data can be stored on the same floppy disk?
  (a) A floppy disk has two sides, one for data and one for programs
  (b) Programs and data are both software, and both can be stored on any memory device
  (c) A floppy disk has to be formatted for one or for the other
  (d) Floppy disks can only store data, not programs

109. The primary output device for computers is a ....
  (a) video monitor   (b) printer
  (c) keyboard   (d) mouse

110. The name of the location of a particular piece of data is its ....
  (a) address   (b) memory name
  (c) storage site   (d) data location

111. A platform surrounded by rail lines from all the four sides, is called
  (a) dock platform
  (b) passenger platform
  (c) island platform
  (d) goods platform

112. Indian Railways Nationalised in which year ?
  (a) 1952   (b) 1950
  (c) 1951   (d) 1954

113. In which year Research, Design and Standard organization was established?
  (a) 1953   (b) 1957
  (c) 1956   (d) 1967

114. Railway Staff College is situated at
  (a) Mumbai   (b) Secundrabad
  (c) Ahmedabad   (d) Vadodara

115. Where is the Research, Design and Standard Organisation situated?
  (a) Lucknow   (b) Bangalore
  (c) Agra   (d) Pune

116. Who has been appointed as National Security Adviser (NSA) by Donald Trump ?
  (a) Robert Cutler   (b) Gordon Gray
  (c) Michael Flynn   (d) Susan Rice

117. What is the currency of Cyprus?
  (a) Euro   (b) Dollar
  (c) Dinar   (d) Peso

118. Supreme Court has banned Jallikattu, which is a sports related to taming of which animal?
  (a) Bull   (b) Lion
  (c) Buffalo   (d) Elephant

119. Which NASA Astronaut has recently become the oldest woman to travel in the Space
  (a) Ellen Baker   (b) Mary Cleave
  (c) Anna Fisher   (d) Peggy Whitson

120. Who is the Minister of Petroleum and Natural Gas?
  (a) Dr. Jitendra Singh
  (b) Dharmendra Pradhan
  (c) Chaudhary Birender Singh
  (d) Anant Geete

Hints & Explanations

1. (d) Required number

$$= \left(6\frac{3}{5} - 3\frac{4}{5}\right) \times 355$$

$$= \left(\frac{33}{5} - \frac{19}{5}\right) \times 355$$

$$= \frac{14}{5} \times 355 = 994$$

2. (c) Let x be the number of times, then
$$79x + 43759 = 50,000$$

$$\Rightarrow x = (50000 - 43759) \div 79 = \frac{6241}{79} = 79$$

3. (c) Total number of sweets

$$= 65 \times 65 \times \frac{20}{100} + 4 \times 65 \times \frac{40}{100}$$

$$= 845 + 104 = 949$$

4. (c) Initial area of the carpet
$$= 3 \times (3 \times 1.44) \text{ sq. metre}$$
$$= 12.96 \text{ sq. metre}$$
After corresponding changes in dimensions,
Area of the carpet

$$= \left(3 \times \frac{125}{100}\right) \times \left(3 \times 1.44 \times \frac{140}{100}\right)$$

$$= 22.68 \text{ sq. metre}$$
$$\therefore \text{ Increase in area}$$
$$= (22.68 - 12.96) \text{ sq. metre}$$
$$= 9.72 \text{ sq. metre}$$
$$\therefore \text{ Increase in the cost}$$
$$= ₹ (9.72 \times 45) = ₹ 437.4$$

5. (b) In 60 gm. of mixture,
Quantity of water

$$= 60 \times \frac{75}{100} = 45 \text{ gm}$$

Quantity of milk = 15 gm
After mixing 15 gm of more water, Quantity of water in new mixture
$$= 45 + 15 = 60 \text{ gm}$$
$$\therefore \text{ Quantity of water in 75 gm of mixture} = 60 \text{ gm}$$
$$\therefore 100 \text{ gm of mixture will contain}$$

$$= \frac{60}{75} \times 100 = 80\% \text{ of water}$$

6. (d) Third number
$$= 290 - 2 \times 48.5 - 2 \times 53.5$$
$$= 290 - 97 - 107 = 86$$

7. (c) Let average weight of girls = x
Total weight of the boys = 40 kg × 15
$$= 600 \text{ kg.}$$
Average weight

$$= \frac{\text{Total weight of girls + Total weight of boys}}{\text{No. of boys + No. of girls}}$$

$$\Rightarrow 38.4 = \frac{600 + 10 \times x}{15 \quad 10}$$

$$\Rightarrow 38.4 = \frac{600 \quad 10x}{25}$$

$$\Rightarrow 38.4 \times 25 = 600 + 10x$$
$$\therefore \quad x = 36 \text{ kg}$$

8. (c)

$$\tan 30° = \frac{h}{PM} \Rightarrow PM = \sqrt{3}h$$

$$\tan 60° = \frac{h \quad 400}{PM} \Rightarrow PM = \frac{h \quad 400}{\sqrt{3}}$$

$$\sqrt{3}h \quad \frac{h \quad 400}{\sqrt{3}} = 3h - h = 400$$
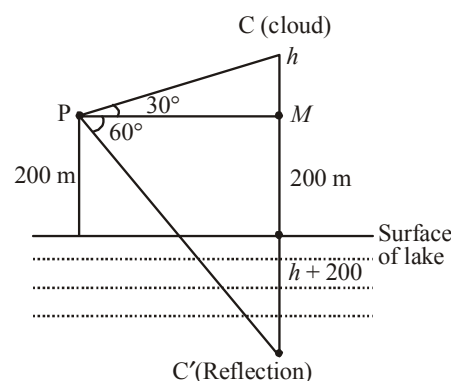
$$\Rightarrow \quad 2h = 400$$
$$\Rightarrow \text{ So, height of the cloud} = 200 + 200$$
$$= 400m$$

9. (c) Let C completes the work in x days.

Work done by (A + B) in 1 day = $\frac{1}{10}$

Work done by (B +C) in 1 day = $\dfrac{1}{18}$

A's 5 days' work + B's 10 days' work + C's 15 days' work = 1

or (A + B)'s 5 days' work + (B + C)'s 5 days' work + C's 10 days' work = 1

or $\dfrac{5}{10} + \dfrac{5}{18} + \dfrac{10}{x} = 1$ or x = 45 days

10. (a) ∠ABC + ∠ADC = 180° (sum of opposites angles of cyclic quadrilateral is 180°)
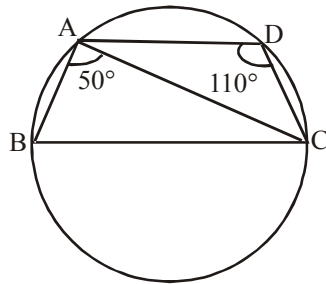
⇒ ∠ABC + 110° = 180°

(ABCD is a cyclic quadrilateral)

⇒ ∠ABC = 180 – 110 ⇒ ∠ABC = 70°

(∵ AD ∥ BC)

∴ ∠ABC + ∠BAD = 180° (Sum of the interior angles on the same side of transversal is 180°)

70° + ∠BAD = 180°

⇒ ∠BAD = 180° – 70° = 110°

⇒ ∠BAC + ∠DAC = 110°

⇒ 50° + ∠DAC = 110°

⇒ ∠DAC = 110° – 50° = 60°

11. (b)
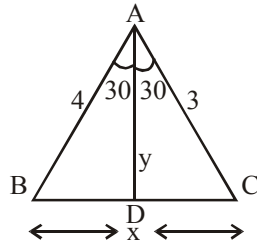
Using the theorem of angle of bisector,

$\dfrac{BD}{DC} = \dfrac{AB}{AC} = \dfrac{4}{3}$

⇒ BD $= \dfrac{4}{7}$x & DC $= \dfrac{3}{7}$x

In △ABD, by sine rule, $\dfrac{\sin 30}{4/7\,x} = \dfrac{\sin B}{y}$ ...(i)

In △ABC, by sine rule; $\dfrac{\sin 60}{x} = \dfrac{\sin B}{3}$

or $\dfrac{\sqrt{3}}{2x} = \dfrac{\sin 30.y}{4/7x \times 3}$

[putting the value of sin B from (i)]

⇒ y $= \dfrac{\sqrt{3}}{2x} \times \dfrac{4}{7} x \times 3 \times \dfrac{2}{1} = \dfrac{12\sqrt{3}}{7}$

12. (c) Let the radius of the semicircle be *R*.
Now join *O* to *B*

$OC = OD = R$ ∴ $OB = R\sqrt{2}$

The diameter of the smaller circle

$= (R\sqrt{2} - R) = R\,(\sqrt{2} - 1)$

Area of the semicircle $= \dfrac{\pi R^2}{2}$;

Area of the circle $= \dfrac{\pi R^2 (\sqrt{2} - 1)^2}{2^2}$

Hence the ratio of the area of the smaller

circle to that of the semicircle $= \dfrac{(\sqrt{2} - 1)^2}{2}$

or $(\sqrt{2} - 1)^2 : 2$

13. (b)
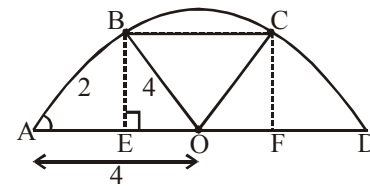
BO = radius = 4 = AO

AE = 2 cos A $= 2 \times \left(\dfrac{2^2 + 4^2 - 4^2}{2 \times 2 \times 4} \right) = \dfrac{2}{4} = \dfrac{1}{2}$

∴ BC = AD – AE – FD $= 8 - \dfrac{1}{2} - \dfrac{1}{2} = 7$

(∵ AE = FD)

14. (b) Let the side of the square be x, then

$BE = \dfrac{x}{3}$ and $BF = \dfrac{x}{2}$
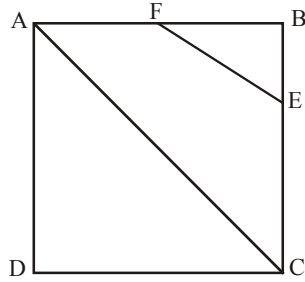
Area of $\Delta FEB = \dfrac{1}{2} \times \dfrac{x}{3} \times \dfrac{x}{2} = \dfrac{x^2}{12}$

Now, $\dfrac{x^2}{12} = 108$

$\Rightarrow x^2 = 108 \times 12 = 1296$

In ΔADC, we have

$AC^2 = AD^2 + DC^2$

$= x^2 + x^2 = 2x^2$

$= 2 \times 1296 = 2592$

or $AC = \sqrt{2592} = 36\sqrt{2}$

15. (c) $\dfrac{1}{1+a} + \dfrac{1}{1+b} + \dfrac{1}{1+c}$ ...(i)

Given that,

$a^2 = b + c$

$a + a^2 = a + b + c$

$a(a+1) = a+b+c$

$a + 1 = \dfrac{a+b+c}{a}$

$\dfrac{1}{a+1} = \dfrac{a}{a+b+c}$

Similarly,

$\dfrac{1}{b+1} = \dfrac{b}{a+b+c}$

$\dfrac{1}{c+1} = \dfrac{c}{a+b+c}$

Put in eq. (i)

$\therefore \dfrac{a}{a+b+c} + \dfrac{b}{a+b+c} + \dfrac{c}{a+b+c}$

$= \dfrac{a+b+c}{a+b+c} = 1$

16. (b) Given that, $x + \dfrac{1}{y} = 1$

$\Rightarrow \qquad xy + 1 = y$ ...(i)

and $\qquad y + \dfrac{1}{z} = 1$

$\Rightarrow \qquad 1 - \dfrac{1}{z} = y$

$\Rightarrow \qquad \dfrac{z-1}{z} = y$ ...(ii)

From eq. (ii),

$y = \dfrac{z-1}{z}$

Comparing eqn. (i) with (ii)

$xy + 1 = \dfrac{z-1}{z}$

$\Rightarrow \qquad xyz + z = z - 1$

$\Rightarrow \qquad xyz = -1$

17. (a) $p = 999$ (Given)

Expression $\Rightarrow \sqrt[3]{p^3 + 3p^2 + 3p + 1}$

$\Rightarrow \sqrt[3]{(p+1)^3}$

$\Rightarrow p + 1 = 999 + 1 = 1000$

18. (a) $\dfrac{1+\sin\theta}{1+\cos\theta} + \dfrac{1-\sin\theta}{1-\cos\theta} + \dfrac{1-\sin^2\theta}{1-\cos^2\theta}$

$= \dfrac{\cos^2\theta}{\sin^2\theta} = \dfrac{1}{\tan^2\theta} = \dfrac{1}{\dfrac{8}{7}} = \dfrac{7}{8}.$

19. (a) Given, $3\cos\theta = 5\sin\theta \Rightarrow \tan\theta = \dfrac{3}{5}.$

$\sec\theta = \sqrt{1 + \tan^2\theta} = \sqrt{1 + \left(\dfrac{3}{5}\right)^2}$

$= \sqrt{\dfrac{25+9}{25}} = \dfrac{\sqrt{34}}{5}.$

In expression, dividing the numerator & denominator by $\cos\theta$,

$= \dfrac{5\tan\theta - 2\sec^4\theta + 2}{5\tan\theta + 2\sec^4\theta - 2}$

$= \dfrac{5 \times \dfrac{3}{5} - 2 \times \left(\dfrac{\sqrt{34}}{5}\right)^4 + 2}{5 \times \dfrac{3}{5} + 2 \times \left(\dfrac{\sqrt{34}}{5}\right)^4 - 2}$

$$= \frac{3 - 2 \times \dfrac{1156}{625}}{3 + 2 \times \dfrac{1156}{625} - 2} = \frac{5 - \dfrac{2312}{625}}{1 - \dfrac{2312}{625}}$$

$$= \frac{813}{2937} = \frac{271}{979}$$

20. (b) $(a \cos \theta - b \sin \theta)^2 + (a \cos \theta + b \sin \theta)^2$
$= a^2 \cos^2 \theta + b^2 \sin^2 \theta - 2ab \sin \theta \cos \theta + a^2$
$\quad \cos^2 \theta + b^2 \sin^2 \theta + 2ab \cos \theta . \sin \theta .$
$= a^2 (\cos^2 \theta + \sin^2 \theta) + b^2 (\sin^2 \theta + \cos^2 \theta)$
$= a^2 \times 1 + b^2 \times 1$
$= a^2 + b^2.$

∴ $(a \cos \theta - b \sin \theta)^2 + (a \cos \theta + b \sin \theta)^2$
$= a^2 + b^2.$

⇒ $c^2 + (a \cos \theta + b \sin \theta)^2 = a^2 + b^2$

⇒ $a \cos \theta + b \sin \theta = \pm \sqrt{a^2 + b^2 - c^2}$

21. (d) New quantity of item D

$= 40 \times \dfrac{150}{100} = 60$ quintal
New price/kg of item D
$= 90\%$ of ₹ 12.5

$= 12.5 \times \dfrac{90}{100} = ₹ 11.25/\text{kg}$

∴ Total price
$= ₹ (60 \times 100 \times 11.25)$
$= ₹ 67500$

22. (d) Required average price/kg

$= ₹ \left(\dfrac{17.5 + 10 + 7.5}{3} \right) = ₹ \dfrac{35}{3} = ₹ 11.67$

23. (a) Required ratio $= 15 \times 25 : 10 \times 35$
$= 3 \times 5 : 2 \times 7 = 15 : 14$

24. (d)
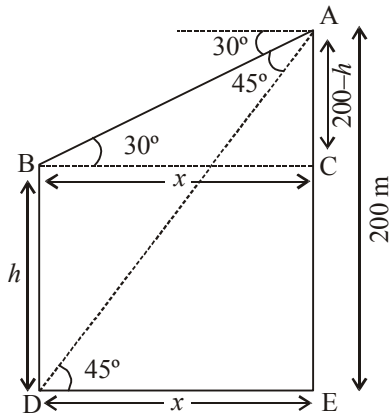
25. (d) In ΔACB, tan 30º $= \dfrac{200 - h}{x} \cdot \dfrac{1}{\sqrt{3}}$

$= \dfrac{500 - h}{x}$

⇒ $x = (200 - h)\sqrt{3}$ ... (i)
In ΔADE,

tan 45º $= \dfrac{200}{x}$

⇒ $1 = \dfrac{200}{x} \Rightarrow x = 200$ m
From Eq. (i)
$200 = (200 - h) \sqrt{3}$

⇒ $h = 200 \left(\dfrac{\sqrt{3} - 1}{\sqrt{3}} \right) \text{m}$

25. (d) The stack is in the form having vertical cross section of trapezium.
∴ Volume of Earth in the stack = Area of cross section of trapezium × Height

∴ Volume $= \dfrac{1}{2} \times (10 + 5) \times 2 \times 8 = 15 \times 8 \, \text{m}^2$

According to the question,
Volume of Earth to be spread = (Area of field) × Level raised

∴ Level raised $= \dfrac{15 \times 8}{100 \times 80} \cdot \dfrac{15}{1000} \text{m} = 1.5 \, \text{cm}$

26. (b) Let the divisor be x
According to the question

Quotient will be $= \dfrac{x}{25}$

Remainder $= \dfrac{x}{5}$
Given, quotient $= 16$

So, $\dfrac{x}{25} \cdot 16$
∴ $x = 25 \times 16$ ....(i)
Dividend
$=$ Divisor × Quotient + remainder

$= x \times \dfrac{x}{25} \cdot \dfrac{x}{5} = \dfrac{x}{5} \left(\dfrac{x}{5} \cdot 1 \right)$

$= \dfrac{16 \times 25}{5} \left(\dfrac{25 \times 16}{5} \cdot 1 \right)$ [Putting the value of x]

$$= \frac{16 \times 25 \times 405}{25} = 6480$$

OR, Divisor $= 25 \times 16 = 400$

Remainder $= \frac{400}{5} = 80$

$\therefore$ Dividend
$= 400 \times 16 + 80 = 6480$

27. (c) Greatest number of 5 digits is 99999.

```
  3 | 9999  (316
    |   9
    ─────────
 61 |  99
    |  61
    ─────────
626 | 3899
    | 3756
    ─────────
    |  143
```

$\therefore$ Required number $= (99999 - 143 = 99856)$.

28. (a) LCM of 32, 36, 48, 54 = 864

29. (b) Difference of marks $= 72 + 61 - 48 - 65 = 20$
Correct average marks

$= 68 + \frac{20}{20} = 68 + 1 = 69$

30. (a) Let C.P. $= ₹\,100$, then M. P. $= ₹\,150$
S.P. $= 70\%$ of $150 = ₹\,105$

$\therefore \%\text{ profit} = \frac{105 - 100}{100} \times 100 = 5\%$

31. (a) Let the population of the village X be 5x.
and that of village Y $= 7x$.
According to the question,

$\frac{5x}{7x + 25000} = \frac{25}{36}$

$\Rightarrow 180x = 175x + 25 \times 25000 \Rightarrow 5x = 625000$
$\therefore \; x = 625000$

32. (a) $15\,W = 10\,M$

Now, $5W + 4M = 5W + \left(\frac{4 \times 15}{10}\right) W$

$= 5W + 6W = 11\,W$
If 15 women can complete the project in 55 days,
11 women can complete the same project in

$\frac{55 \times 15}{11} = 75\,\text{days}$

33. (a) Let the speed of the goods train be x kmph.
Distance covered by goods train in 10 hours
= Distance covered by express train in 4 hours.

$\therefore 10x = 4 \times 90$ or $x = 36$.
So, speed of goods train = 36 kmph.

34. (a) Let the edge of the third cube be x cm.
Then, $x^3 + 6^3 + 8^3 = 12^3$
$\Rightarrow x^3 + 216 + 512 = 1728 \Rightarrow x^3 = 1000 \Rightarrow x = 10$.
Thus the edge of third cube = 10 cm.

35. (c) C.P. $= 50 \times 4 = ₹\,200$
Remaining eggs $= 600 - 40 = 560$
Let S.P. of eggs $= ₹\,x$ per dozen

$\therefore$ Total S.P. $= ₹\,\dfrac{560}{12}x$

$\therefore \dfrac{560}{12}x = \dfrac{(100 + 5)\%}{100} \times 200$

$\Rightarrow x = \dfrac{105}{100} \times \dfrac{2400}{560} = ₹\,4.5\,\text{per dozen}$

36. (a) Let cistern will be full in x min. Then,
part filled by A in x min + part filled by B in $(x - 1)$ min + part filled by C in $(x - 2)$ min $= 1$

$\Rightarrow \dfrac{x}{3} + \dfrac{x-1}{4} + \dfrac{x-2}{6} = 1$

$\Rightarrow 9x = 19 \Rightarrow x = \dfrac{19}{9} = 2\dfrac{1}{9}\,\text{min}$

37. (d) Let the speed of the second train be x km/h
The relative speed $= (50 + x)$ km/h
These trains will cross each other in a time equivalent of covering a distance equal to $108 + 112$, i.e. 220 meters in 6 seconds, running a speed of $(50 + x)$ km/h

$\therefore \dfrac{1}{50 + x} \times \dfrac{220}{1000} = \dfrac{6}{3600} \Rightarrow x = 82$

$\therefore$ The speed of the second train = 82 km/h.

38. (a) $y : x = 4 : 15 \Rightarrow x : y = 15 : 4$
By componendo and dividendo,

$\dfrac{x - y}{x + y} = \dfrac{15 - 4}{15 + 4} = \dfrac{11}{19}$

39. (a) $x + \dfrac{1}{4x} = \dfrac{3}{2} \Rightarrow 2x + \dfrac{1}{2x} = 3$
Cubing both sides,

$8x^3 + \dfrac{1}{8x^3} + 3 \times 2x \times \dfrac{1}{2x}$

$\left(2x + \dfrac{1}{2x}\right) = 27$

$$\Rightarrow 8x^3 + \frac{1}{8x^3} + 3 \times 3 = 27$$

$$\Rightarrow 8x^3 + \frac{1}{8x^3} = 27 - 9 = 18$$

40. (d) $\tan \theta = \dfrac{BC}{AB} = \dfrac{1}{\sqrt{7}} = \dfrac{1}{\sqrt{7}k}$
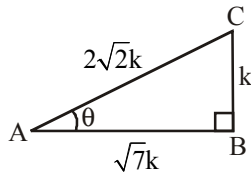
$$AC^2 = (AB^2 + BC^2)$$
$$= (7k^2 + k^2) = 8k^2$$
$$\therefore AC = \sqrt{8k^2} = 2\sqrt{2}k$$

$$\sec \theta = \frac{AC}{AB} = \frac{2\sqrt{2}k}{\sqrt{7}k} = \frac{2\sqrt{2}}{\sqrt{7}},$$

$$\operatorname{cosec} \theta = \frac{AB}{BC} = \frac{2\sqrt{2}k}{k} = 2\sqrt{2}$$

$$\therefore \frac{\operatorname{cosec}^2 \theta - \sec^2 \theta}{\operatorname{cosec}^2 \theta + \sec^2 \theta} = \frac{\left(2\sqrt{2}\right)^2 - \left[\dfrac{2\sqrt{2}}{\sqrt{7}}\right]^2}{\left(2\sqrt{2}\right)^2 + \left[\dfrac{2\sqrt{2}}{\sqrt{7}}\right]^2}$$

$$= \left[\frac{8 - \dfrac{8}{7}}{8 + \dfrac{8}{7}}\right] = \frac{48}{64} = \frac{3}{4}$$

41. (b) First is an instrument to measure the second.

42. (b)

H	E	A	T	E	R
+3	−3	+3	−3	+3	−3
K	B	D	Q	H	O

Similarly,

C	O	O	L	E	R
+3	−3	+3	−3	+3	−3
F	L	R	I	H	O

43. (d) $12 = 3^2 + 3$, $\quad 30 = 5^2 + 5$:
$20 = 4^2 + 4$: $\quad ? = 6^2 + 6$

44. (a) Micrabe is living organism others are scientific apparatus.

45. (d) The pattern is –

B   D   G   K J   L   O   S
+2   +3   +4   ;   +2   +3   +4

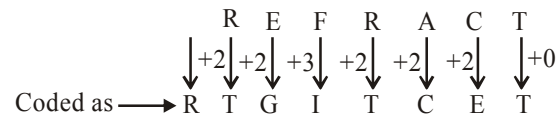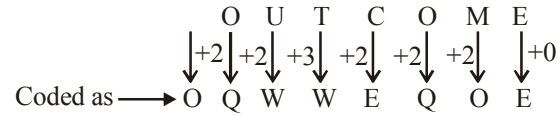H   J   M   Q M   O   R   U
+2   +3   +4   ;   +2   +3   +3
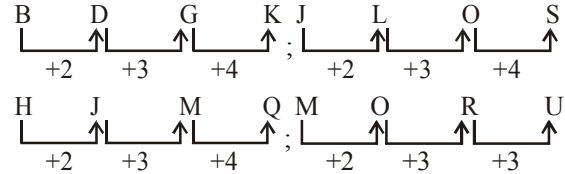
Hence, MORU is odd one out.

46. (a) 1st letter moves −2 steps each time.
2nd letter moves +1, +2, +3, +4 steps respectively.
3rd letter moves +2, +3, steps alternatively.

47. (c) $1^3 + 1^2 = 2$, $2^3 + 2^2 = 12$, $3^3 + 3^2 = 36$ and so on $\therefore 6^3 + 6^2 = 252$

48. (a)

O U T C O M E
+2 +2 +3 +2 +2 +2 +0
Coded as ⟶ O Q W W E Q O E

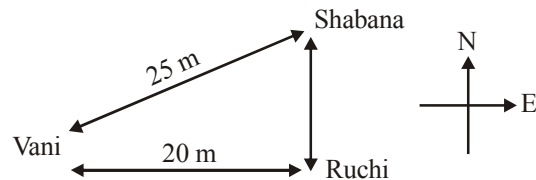R E F R A C T
+2 +2 +3 +2 +2 +2 +0
Coded as ⟶ R T G I T C E T

49. (b) A = 1

P A T
16 + 1 + 20 = 37

T A P
20 + 1 + 16 = 37

50. (a) Father of Rajesh's brother is the father of Rajesh. Rajesh's father is the only son of Neha's grandfather. Hence, Rajesh's father is Neha's father. So, Neha is the sister of Rajesh.

51. (c)

52. (b) New arrangement of numbers is as follows:
15698372
Hence, third number from right end is 3.

53. (a) Total boys

$$\begin{bmatrix} \text{Mahendra's} & \text{Surendra's} \\ \text{place} & \text{place} \\ \text{from left} & \text{from right} \end{bmatrix} + \begin{bmatrix} \text{Boys between} \\ \text{them} \end{bmatrix}$$

$= [17 + 18] + 8 = 43$

54. (b) $(5-1) \times (6-3) = 12$
$(7-3) \times (8-3) = 20$
$(7-2) \times (6-3) = 15$

55. (c) As, $3 \times 7 = 21, 11 \times 7 = 77$
$4 \times 9 = 36, 12 \times 9 = 108$
Therefore, $14 \times 8 = 112$
$? \times 8 = 24$

?	3

56. (c) Silver jublee - 25 yr.
Golden jublee - 50 yr.
Diamond jublee - 75 yr.
Centenary - 100 yr
Millennium - 1000 yr.

57. (b) SIGNAL

58. (c) Area common to ◯ and △.

59. (a) Conclusions:
I. (True)
II. (True)
Hence, option (a) is the correct answer.
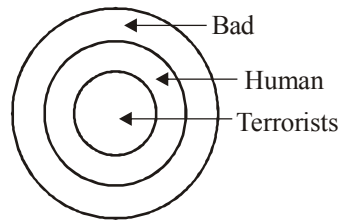
60. (b) $6 \times 4 - 9 = 15$

61. (c) By options –
(a) $22 \times 7 + 3 - 9 = 148$
$154 + 3 - 9$
$157 - 9 = 148$ (correct)
(b) $33 - 5 + 10 \times 20 = 228$
$33 - 5 + 200$
$200 + 33 - 5$
$233 - 5 = 228$ (correct)
(c) $7 \times 28 + 3 - 52 = 127$
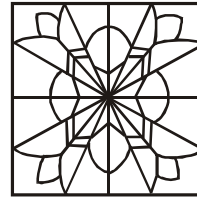$196 + 3 - 52$
$199 - 52 = 147$ (incorrect)

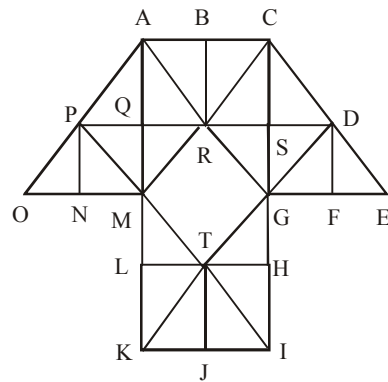(d) $44 + 9 \times 6 - 11 = 87$
$44 + 54 - 11$
$98 - 11 = 87$ (correct)

62. (c) From figures (i), (ii) and (iii), we conclude that 3, 4, 2 and 6 lie adjacent to 5. Therefore, 1 must lie opposite 5.
From figures (i), (iii) and (iv), we conclude that 4, 5, 6 and 1 lie adjacent to 3. Therefore, 2 must lie opposite 3. Now, we have 1 opposite 5 and 2 opposite 3. Hence, 4 must lie opposite 6.

63. (b)

64. (c)

The simplest triangles are:
ΔPNO; ΔPNM; ΔMPQ;
ΔMQR; ΔAQP; ΔAQR;
ΔBRA; ΔBRC; ΔSRC;
ΔSCD; ΔSGR; ΔSGD;
ΔDFG; ΔDFE; ΔTLM;
ΔTJK; ΔTLK; ΔTIH;
The triangles composed of two components are:
ΔPON; ΔPMA; ΔAPR;
ΔRAM; ΔRAC; ΔRGC;
ΔDGC; ΔDGE; ΔMPR;
ΔGRD; ΔDGE; ΔTMK;
ΔTKI; ΔTIG
The triangles composed of four components are:
ΔAMO; ΔAMC; ΔCAG;
ΔCGE; ΔMKI; ΔGIK;
Other triangles are :ΔSPI; ΔDQK
Total number of triangles
$18 + 14 + 6 + 2 = 40$

65. (c)

66. (d) The colour of human blood is red. Here *white* means *red*. Therefore *white* is our answer.
Do not opt for *black* because *red* means *black* implies that black is called red.

67. (d) P S I C H O L A Z Y
0 1 2 3 4 5 6 7 8 9
875.50 = ZAO.OP

(68-69) : Pranab   ⇔   Reva

     (+)   (−)

     ↓   ↓   ↓

    Neela   Prakash   Vikash
     (−)   ( )

     ↓

    Mohan   Arun
      ( )

68. (a)   69. (c)

(70-72).

A + B ⇒ A is the father of B.
A × B ⇒ A is the sister of B.
A $ B ⇒ A is the wife of B.
A % B ⇒ A is the mother of B.
A ÷ B ⇒ A is the son of B.

70. (a) J ÷ P % H × T % L can be represented in diagram. As follows.
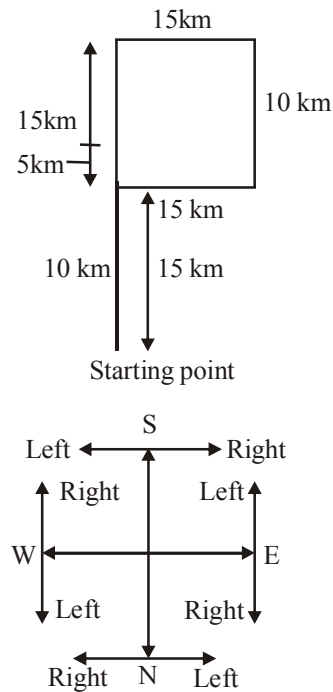

☐ - Male
◯ - Female
= - Sibling Relation
↔ - Spouse Relation
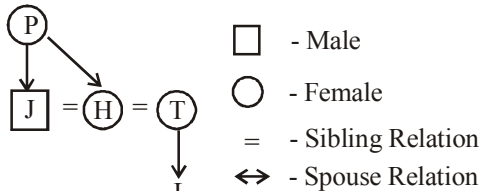
71. (b) L + R $ D + M × T
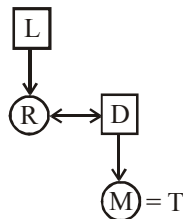
72. (b) I + T % J × L ÷ K
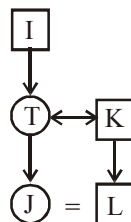
73. (b)

So, he is 10 metres from his starting point.

74. (b) No of boys = x; No of girls = 2x;
x + 2x = 90 ⇒ 3x = 90
x (Boys) = 30 ; 2x (Girls) = 60
Number of student behind Shridar = 90 − 14 = 76
No of girls behind Shridar = 60 − 10 = 50
No of boys behind Shridar = 76 − 50 = 26

75. (b) Given that,
Q < R and U
also T > P > S and R > P
Q got the second least rank and U got the second highest rank.
So, T should have got least and S should have got the highest ranks.

T   Q   __   __   U   S

Since R > P the final arrangement is as follows.

Student	T	Q	R	P	U	S
Rank	6	5	4	3	2	1

76. (a) T

77. (d)

1	3	4	7	9	2	5	6	8
A	Q	F	J	L	D	M	P	N

Thus,

3	9	6	8	2	4
Q	L	P	N	D	F

78. (c) The - ji from 2nd and 3rd code, aim and zo only present in 2nd code.
From 3rd and 4th code, stadium - ku

79. (d) From 1st and 4th, was - ho,
from 1st and 3rd - singing - ta
bo and she not present anywhere.

80. (c) From 3rd, at - ma

81. (d) It was constituted by Shivaji in Maratha administration.

82. (c) Bengal Gazette was published by James Augustus Hikkey in 1780.

83. (c) Jatindra Nath Das (27 October 1904 - 13 September 1929), also known as Jatin Das, was an Indian freedom fighter and revolutionary. He died in Lahore jail after a continuous hunger strike for 63 days demanding equality for Indian prisoners and undertrials.

84. (d) 'Federal' term is not used in the preamble of the Indian constitution.

85. (b) The Prime Minister of India is the head of the Central Government.

86. (c) There are 5 types of writs can be issued by the Supreme Court

87. (d) The Indian Economy is characterised by pre-dominance of agriculture, low per capita income and massive unemployment.

88. (d) The Green Revolution in India has contributed to inter-regional, inter-class and inter-crop inequality.

89. (c) Middle luminous zone of a candle flame is the hottest.

90. (d)

91. (c) In Astigmatism, eye cannot see objects in two orthogonal directions clearly simultaneously. This abnormality is removed by using cylindrical lens.

92. (d) Fertilizers are those compounds which provide essential primary nutrients (nitrogen, phosphorus and potassium) required for healthy growth of plants and crops. Nitrogeneous fertilizer provide nitrogen, phosphatic fertilizer provide phosphorus whereas potassh fertilizer provide potassium to soil.
NPK fertilizers are mixed fertilizers. They provide all three essential nutrients (nitrogen, phosphorus and potassium). NPK fertilizers contains nitrogen, phosphorus and potassium in different proportion depending upon the requirement of soil.

93. (a) Fluorine is the most reactive among all halogens. However the reactivity deceases from F_2 to I_2 (from top to bottom of group) may be attributed to
   (1)   Low dissociation enthalpies
   (2)   High electron affinities

94. (d) Potato tuber bears buds in small pits known as eyes. Buds develops to branches. Some of the branches become green, erect & leafy stems that grow horizontally under ground.

95. (b) Athlete's Foot disease is caused by parasitic fungus of genus Trichophyton. Scaling, flaking and itching of affected areas are the symptoms of this disease. This disease transmitted in moist areas where people walk bare foot.

96. (b) Chlorophyll is a tetrapyrole ring system that chelate the magnesium ion. The tetrapyrole ring system that chelates this magnesium shows a conjugated double bond. This bond provide the light absorption feature to chlorophyll and gives it green colour.

97. (d) The stomach is divided into two parts fundic and pyloric region. The pyloric region opens into small intestine through pyloric valve of pylorus.

98. (a)   99. (c)   100. (d)   101. (c)   102. (b)
103. (c)   104. (b)   105. (b)   106. (b)   107. (a)
108. (b)   109. (a)   110. (a)   111. (c)   112. (b)
113. (b)   114. (d)   115. (a)

116. (c)   Michael Flynn
117. (a)   Euro
118. (a)   Bull
119. (d)   Peggy Whitson
120. (b)   Minister of Petroleum and Natural Gas, Dharmendra Pradhan announced that people can get cash at select petrol pumps with SBI machines by swiping their debit cards from November 18, 2016.