1. Ans: 3

   19, 24, 31, 42, 55, 72, ___

   +5 +7 +11 +13 +17 +19

   72+19=91

2. Ans: 2

   10, 58, 105, ___ 196, 240,

   +48 +47 +46 +45 +44

   105+46=151

3. Ans: 1

   Z, W, R, K

   26   23 18   11

   -3   -5   -7

   11-9=2-B

4. Ans: 2

   1,   4,   13, 40, 121, ___

   +3   +9 +27 +81 +243

   121+243=364

5.   Sol: 0, 1, 2, 3, 6, 11, 20, ____
      0 + 1 + 2 = 3
      2 + 3 + 6 = 1
      3 + 6 + 11 = 20
      6 + 11 + 20 = 37
      ANS: (3)

6.   Sol: 6, 10, 16, 26, 42   68
         7   8   15   23   38
         7 + 8 = 15
         8 + 15 = 23
         15 + 23 = 38
         23 + 38 = 61
      Ans (1)

7. Sol :

	2				7				7	
5	37	9		11	62	3		17	88	?
	6				6				5	
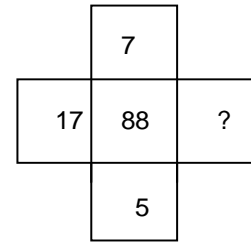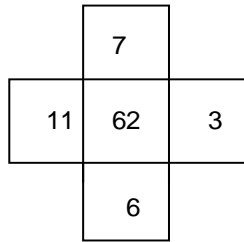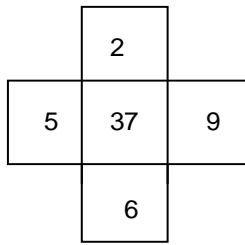
$5 \times 6 + (9 - 2) = 37$

$6 \times 11 + (3 - 7) = 62$

$17 \times 5 + x - 7 = 88$

$x = 10$

ANS : (4)

8.
Sol : Pen is for writing cycle is for riding
ANS: (3)

9. Sol : Eye is part of face in the same way knob is part of door.
ANS: (3)

10. Sol : Wing and Beak are parts of a bird. Pluto and Venus the parts of solar system.
ANS: (2)

11. Sol : Room is a part of house in the same way roof is a part of building
ANS: (3)

12.
Sol : $5 : 29 :: \underline{\hspace{1.5cm}} : 41$

$(5 \times 6) - 1 = 29 \qquad (5 \times 6) - 1 = 29$

$(6 \times 7) - 1 = 41 \qquad (7 \times 6) - 1 = 41$

ANS : (2/3)

13. Sol : Canada currency is dollar in the same way Germany currency is Deutscho Mark
ANS: (3)

14. Sol : Potato has carbohydrate, in the same way Ghee has fat.
ANS: (4)

15. Sol : Davis cup is played for Lawn Tennis, in the same way Deodar Trophy is played for cricket
ANS: (2)

16. Sol : $1001 = 7 \times 11 \times 13$
$2431 = 11 \times 13 \times 17$
ANS: (1)

17.
Sol : $132 - 62 = 70$
$237 - 132 = 105$
$237 - 62 = 175$
$HCF = 35$
ANS : (2)

18. Sol: The LCM of 48, 72, 108 is 432, so they strike again in 432 sec = 7 min 12 sec.
ANS: (3)

19. Sol: Total wrong question = 2x
Total correct questions = x.
$\Rightarrow$ Total questions = 60 = 3x
$\Rightarrow$ x = 20
Ans (4)

20.
$$\frac{1}{5 \times 6} + \frac{1}{6 \times 7} + \frac{1}{7 \times 8} + ... + \frac{1}{24 \times 25}$$
$$\frac{1}{5 \times 6} = \frac{6 - 5}{5 \times 6} = \frac{6}{5 \times 6} - \frac{5}{5 \times 6} = \frac{1}{5} - \frac{1}{6}$$
$$\Rightarrow \frac{1}{5} - \frac{1}{6} + \frac{1}{6} - \frac{1}{7} + ... + \frac{1}{24} - \frac{1}{25}$$
everything cancels except
$$\frac{1}{5} - \frac{1}{25}$$
$$= \frac{5 - 1}{25} = \frac{4}{25} = 0.16$$
Ans (2)

21.

$$\frac{2x}{1+\dfrac{1}{1+\dfrac{x}{1-x}}} = 3$$

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

$$\Rightarrow \frac{2x}{1+1-x} = 3$$

$$\Rightarrow \frac{2x}{2-x} = 3$$

$$\Rightarrow 2x = 3\,(2-x)$$

$$\Rightarrow 2x = 6 - 3x$$

$$5x = 6$$

$$\therefore x = 6/5$$

$\therefore$ Ans (2)

22.

Given $36 + 18 \div 9 - 3 \times 26$

$\qquad 36 \div 18 - 9 \times 3 + 26$

$$\Rightarrow \quad 2 - 27 + 26$$

$$\Rightarrow 2 - 1 = 1$$

ANS : (D)

23.   Let total number of children = x

And number of books distributed to each child is y

$\Rightarrow$ Total no of books = xy.

By the sum, $y = \dfrac{1}{8}x$ _____(1)

and $\dfrac{1}{2}x \times 16 = xy$

$$\Rightarrow y = 8$$

$$\Rightarrow x = 64$$

$\therefore$ Total number of note books distributed is $64 \times 8 = 512$

ANS : (A)

24.

$$x = \frac{\sqrt{5} + \sqrt{4}}{\sqrt{5} - \sqrt{4}}$$

$$x = \frac{\sqrt{5} + \sqrt{4}}{\sqrt{5} - \sqrt{4}} \times \frac{\sqrt{5} + \sqrt{4}}{\sqrt{5} + \sqrt{4}}$$

$$x = \frac{(\sqrt{5} + \sqrt{4})^2}{1} = 5 + 4 + 2\sqrt{20}$$

$$x = 9 + 2\sqrt{10}$$

$$y = \frac{\sqrt{5} - \sqrt{4}}{\sqrt{5} + \sqrt{4}} \times \frac{\sqrt{5} - \sqrt{4}}{\sqrt{5} + \sqrt{4}} = (\sqrt{5} - \sqrt{4})^2$$

$$y = 5 + 4 - 2\sqrt{20} = 9 - 2\sqrt{20}$$

$$x^2 + y^2 = (9 + 2\sqrt{20})^2 + (9 - \sqrt{20})^2$$

$$= 2(9^2 + (2\sqrt{20})^2) = 2\,|\,81 + 4 \times 20)$$

$$= 2(81 + 80)$$

$$= 2(161)$$

$$= 322$$

ANS : (A)

25.

$$\sqrt{1.3} + \sqrt{1300} + \sqrt{0.013}$$

$$\frac{\sqrt{1.3 \times 100}}{\sqrt{100}} + \sqrt{13} \times \sqrt{100} + \frac{\sqrt{0.013 \times 10000}}{\sqrt{10000}}$$

$$\frac{\sqrt{130}}{10} + \sqrt{13} \times 10 + \frac{\sqrt{130}}{100}$$

$$\frac{11.40}{10} + (3.605) \times 10 + \frac{11.40}{100}$$

$$= 1.14 + 36.05 + 0.114$$

$$= 37.304$$

ANS : (4)

26.

$$\frac{1}{\sqrt{9}-\sqrt{8}} - \frac{1}{\sqrt{8}-\sqrt{7}} + \frac{1}{\sqrt{7}-\sqrt{8}} - \frac{1}{\sqrt{6}-\sqrt{5}} + \frac{1}{\sqrt{5}-\sqrt{4}}$$

Rationalizing the denominator

$$\frac{1}{\sqrt{9}-\sqrt{8}} \times \frac{\sqrt{9}+\sqrt{8}}{\sqrt{9}+\sqrt{8}} - \frac{1}{\sqrt{8}-\sqrt{7}} \times \frac{\sqrt{8}+\sqrt{7}}{\sqrt{8}+\sqrt{7}} + \frac{1}{\sqrt{7}-\sqrt{8}} \times \frac{\sqrt{7}+\sqrt{8}}{\sqrt{7}+\sqrt{8}}$$

$$= \frac{1}{\sqrt{6}-\sqrt{5}} \times \frac{\sqrt{6}+\sqrt{5}}{\sqrt{6}+\sqrt{5}} + \frac{1}{\sqrt{5}-\sqrt{4}} \times \frac{\sqrt{5}+\sqrt{4}}{\sqrt{5}+\sqrt{4}}$$

$$= \left(\sqrt{9}+\sqrt{8}\right) - \left(\sqrt{8}+\sqrt{7}\right) + \left(\sqrt{7}+8\right) - \left(\sqrt{6}+\sqrt{5}\right) + \left(\sqrt{5}+\sqrt{4}\right)$$

$$= 3 + \cancel{\sqrt{8}} - \cancel{\sqrt{8}} - \cancel{\sqrt{7}} + \cancel{\sqrt{7}} + \cancel{\sqrt{6}} - \cancel{\sqrt{6}} - \cancel{\sqrt{5}} + \cancel{\sqrt{5}} + 2$$

$$= 3 + 2 = 5$$

= option (2)

27.

$$\sqrt{\frac{(0.03)^2(0.21)^2 + (0.065)^2}{(0.003)^2 + (0.021)^2 + (0.0065)^2}}$$

$$= \sqrt{\frac{(3\times10^{-2})^2 + (21\times10^{-2})^2 + (65\times10^{-3})^2}{(3\times10^{-3})^2 + (21\times10^{-3})^2 + (65\times10^{-4})^2}}$$

$$= \sqrt{\frac{9\times10^{-4} + (21)^2\times10^{-4} + (65)^2\times10^{-6}}{9\times10^{-6} + (21)^2\times10^{-6} + (65)^2\times10^{-8}}}$$

$$= \sqrt{\frac{(9\times(21)^2\times(65)^2\times10^{-2})\times10^{-4}}{(9\times(21)^2 + (65)^2\times10^{-2})\times10^{-6}}}$$

$$= \sqrt{\frac{10^{-4}}{10^{-6}}}$$

$$= \sqrt{10^{-4+6}}$$

$$= \sqrt{10^2} = 10$$

$\therefore$ ANS : (3)

28. Volume of wood used in

$$= \pi\left(R^2 - r^2\right) \times h$$

$$= \pi\left(R + r\right)\left(R - r\right) \times h$$

$$= \frac{22}{7} \times 0.4 \times 0.2 \times 28$$

$$= 7.04 cm^3$$

Ans: B

28 cm

3 mm

1 mm
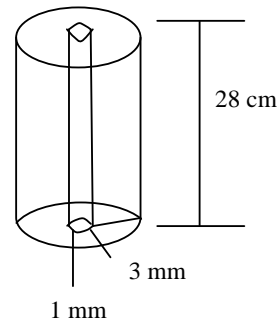
R = 4mm = 0.4cm
r = 1 mm
R + r = 4mm = 0.4cm
R − r = 2mm = 0.2cm

29. Let original two digit number $= \left(10x + y\right)$

Then, number obtained by
interchanging the digits = $\left(10y + x\right)$

By the sum,

$$\left(10x + y\right) - \left(10y + x\right) = 36$$

$$= 9x - 9y = 36$$

$$9\left(x - y\right) = 36$$

$$\therefore x - y = 4$$

Ans : A

30.

A •————————————• B
          390km
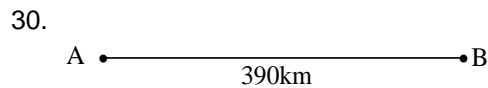
Let time taken by train which starts at B = x hours
⟹ distance travelled in x hours = (65x) km
and another train from B to A takes (x - 1) hours
⟹ distance travelled in (x − 1) hours = 35(x - 1)km

By the sum,

$$65x + 35x - 35 = 390$$

$$100x = 390 + 35$$

$$100x = 425$$
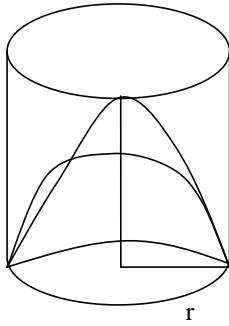
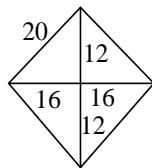$$x = 4.25hrs$$

∴ They meet at 2.15PM

Ans : B

31.

$$\frac{1}{3}\pi r^3 : \frac{2}{3}\pi r^3 : \pi r^3$$

1 : 2 : 3

Ans : C

32.

$d_1 = 24$

$$\frac{d_2}{2} = \sqrt{400 - 144}$$

$$= \sqrt{256} = 16$$

$d_2 = 32$

$$A = \frac{1}{2}d_1 \times d_2 = \frac{24 \times 32}{2}$$

$$= 384 \text{ cm}^2$$

Ans : B

33 – 37

Sol: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
     0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

33. Sol: E + K = 4 + 10 = 14 = O
    ANS: (A)

34. Sol: B + U = 1 + 20 = 21 = V
    ANS: (C)

35. Sol: A + C + F = 0 + 2 + 5 = 7 = H
    ANS: (C)

36. Sol: L – S = 11 – 18 = -7 = T
         A   Z   Y   X   W   V   U   T
         0 -1 -2 -3 -4 -5 -6 -7
    ANS: (B)

37. - D – P = -3-15 = -18 = I
    Now
    A Z Y X W V U T S R Q P O N M L K   J   I
    0 -1 -2 -3 -4 -5 -6 -7 -8 – 9 -10 -11 -12 – 13 – 14 -15 – 16 – 17 – 18
    ANS: (C)

38.
    GOOD →   J P R G
    715154   10 18 18 7

    Sol: $(7+3)(15+3)(4+7)$
    ⇒ F R U I T →   I   U   X   L   W
       6 18 219 20   9 21 24 12 23
    ANS : (B)

39.
    JUNGLE → J N L E GU
    1 2 3 4 5 6   1 3 5 6 4 2

    Sol : FOREST   → FRSTEO
       1 2 3 4 5 6   1 3 5 6 4 2
    ANS : (4)

40. Sol: 10th consonant from B – M
    B C D F G H J K L M
    1 2 3 4 5 6 7 8 9 10th
    ANS: (A)

41. Sol:
    ECONOMY → Clearly MY are there in ECONOMY
    SECOND   while MY are not there in SECOND
    ANS : (A)

42. Sol: N O P Q R S T U V W X Y Z – T divides N and Z
    ANS: (C)

43. Sol : All others except (C) are religions
    ANS: (C) Permission

44. Sol: All other are eatables except (A)
    Ans: (A) Hunger

45. Sol: All others belong to royalty except (D)
    ANS: (D) Labour

46. Sol: All others are countries except (B)
    ANS: (B) West Bengal

47. Sol: The elements are moving to the next side clock wise
    ANS: (A)

48. Sol: The outer circles are going inside, so lines go outside
    ANS: (C)

49. Sol: The lines are moving to next side clockwise and one of the line is removed and added. In the front side
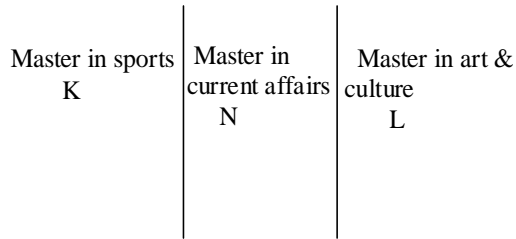   ANS: A

50. Sol: That triangle and star are moving one side clockwise and circle and square interchange their places.
    ANS: D

51. Sol: To the existing figure water image is added.
    ANS: (B)

52. Sol: The figure is rotated by 180°
    ANS: (A)

53. Sol : The second circle become a smaller in the same way line become small
    ANS: (C)

54. Sol: Mirror image and then water image
    ANS: (A)

55. Sol: Inverted L remains the same, u get water image
    ANS: (B)

56. Sol: Rotated by 90° anticlockwise in successive figures
    ANS:(A)

57. Sol: The geometrical figure doubles
    ANS: (C)

58. Sol: The figure is rotated by 90° clockwise successively and the arc inside the circle moves to opposite sides successively
    ANS: (A)

59. Sol: All are arc except 4
    ANS: (D)

60. Sol: Except 4 all are balanced
    ANS: (D)

61. Sol: Outer 3 sides inside 4 sides
    ANS: (D)

62. Sol: Outer 5 sides inside 3 sides
    ANS: (C)

63. Sol: Outer 5 sides inside 4 sides
    ANS: (A)

64. Sol: The same geometrical figure double inside
    ANS: (B)

65. ANS: (A)

Q. 66 – Q. 70

J, M (un married Ladies No command in any subject)

(Husband)   (Wife)   (Brother of L)

N   =   L   –   K

| Master in sports K | Master in current affairs N | Master in art & culture L |

66. Sol: Master of sports 'K'

ANS: (D)

67. Sol: Master of art and culture 'L'
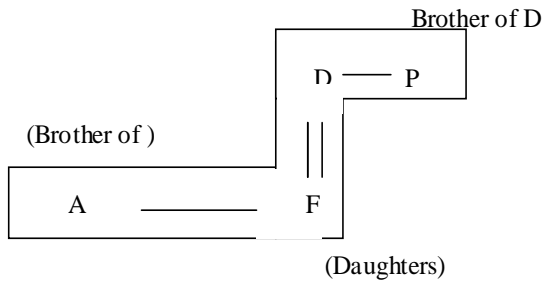
ANS: (B)

68. Sol: Master of current events 'N'

ANS: (A)

69. Sol: Wife of N & 'L"

ANS: (D)
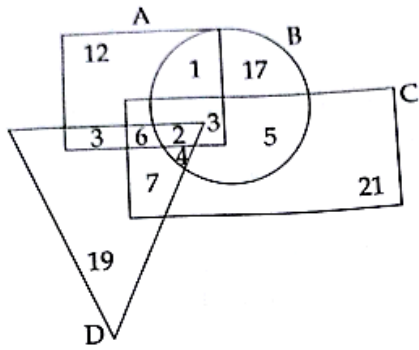
70. Sol: Three ladies are J, L and M

ANS: (C)

71. Sol:

Brother of D

D ⎯ P

(Brother of)

A ⎯⎯⎯ F

(Daughters)

P is uncle of A
ANS: (B)

A – Tamil
B – English
C – Malayalam
D – Telugu

72. Sol: Both English and Tamil
A and B
1 + 2 + 3 = 6
ANS: (D)

73. Sol: English, Telugu and Malayalam B,C,D = 2 + 4 + 6 = 6
ANS: (C)

74. Sol: Either English or Malayalam B, C
1 + 17 + 3 + 5 + 2 + 4 + 6 + 7 + 21=66
ANS: (A)

75. Sol: Population = 100
Tot students = 100
In figure
Students who don't speak either language = 100 – 100 = 0
ANS: (B)

76. Sol:

5	7	X
3	4	12
6	y	18
11	9	99

$3 \times 4 = 12$

$5 \times 7 = x \Rightarrow x = 35$

$6y = 18 \Rightarrow y = 3$

$9 \times 11 = 99$

ANS : B

77. Sol:

0	-2	?
2	0	6
5	-6	0

1st row is additive universe of 1st column ? = - 5
ANS: (B)

78. Sol: a - aa –a – baa – aaba
   abaabaabaabaaba
   bbab
   ANS : (B)

79. Sol: AP PL E 7 9
   ∀ԲԲ⌐Ε⅄6
   ANS: Nearest answer is B

80. Sol: T R U T H
   ⌐Ʀ∩⊥H
   ANS: A

   □ is greater than

   △ is smaller than

   ⊙ is equal to

   ≠ is not equal to

81. Sol: A > B
   C < B
   D = C
   A > B > C = D
   So C > A
   ANS: (A)

82. Sol: C < B = A
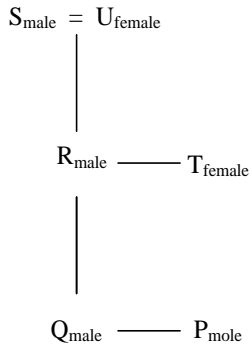   A ≠ C
   So C < A
       A > C
   ANS: (D)

83. Sol:
   A < C
   B > C
   B = E
   So A < C < B = E
   ⇒ A < C
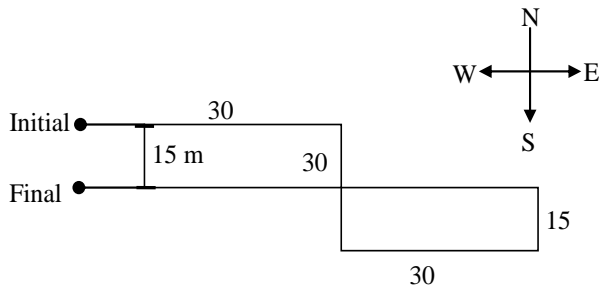   ANS : (B)

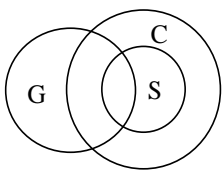84. Sol:
   A > O
   AB > AC
   ⇒ B > C
   So B + D > C + D
   ANS : (C)

(85 – 89)

$$S_{male} = U_{female}$$

$$R_{male} \underline{\hspace{1cm}} T_{female}$$

$$Q_{male} \underline{\hspace{1cm}} P_{mole}$$

85. ANS: (B)

86. ANS: (A)

87. ANS: (C)

88. ANS: (A)

89. ANS: (B)

90.

Initial •———— 30 ————
|15 m
| 30
Final •————

30

15

30

N
W ←——→ E
S

ANS: (D)

91.

G   C
  S

ANS: (B)

92.

A
  m   G

ANS: (C)

93.

| 1 | | 3 | | 5 |
| | 2 | | 4 | |

(figure with triangles numbered 1-10)
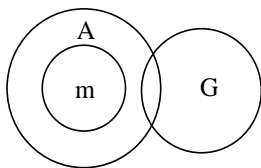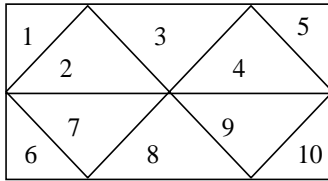
ANS: (A)

94. Sol: In first figure, 2 and 1 are adjacent with 5 an other side
In second figure, 2 and 1 are again adjacent with 4 on other side
Hence it means 2 and 4 are on opposite faces
ANS: (D)

95. Sol: 1, 2, 6, 5 are adjacent sides of 3.
4 must be opposite of 3
Hence the other no.4 must be opposite of 3

ANS: (A)

96. Sol:

MALAYALAM

ANS: (B)

97. Sol:

EFFECTIVE

ANS: (A)

98. Sol:

MAGAZINE

ANS: (D)

99. Sol:

$\theta = \left| 30\,H - \dfrac{11}{2}m \right|$

$= \left| 30 \times 6 - \dfrac{11}{2} \times 45 \right|$

$= \left| 180 - 247.5 \right|$

$= 67.5°$

ANS : (D)

100. Sol.

3.5m

:
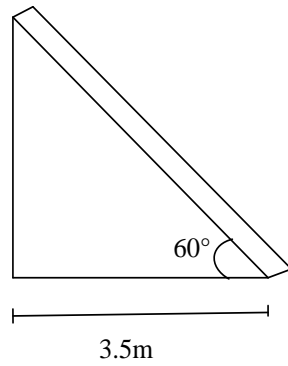
$\cos 60 = \dfrac{\text{base}}{\text{hyp.}} = \dfrac{3.5}{\text{hyp}} = \dfrac{1}{2}$

$\Rightarrow \text{hyp} = 7 \text{ cm}$

ANS : (A)