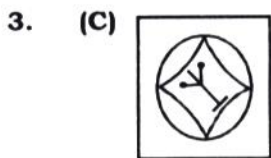
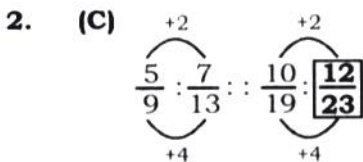
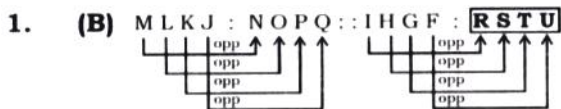


> **ANSWER KEY**

- | | | | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|
| 1. (b) | 2. (c) | 3. (c) | 4. (d) | 5. (a) | 6. (b) | 7. (d) | 8. (c) | 9. (d) | 10. (d) |
| 11. (a) | 12. (b) | 13. (c) | 14. (b) | 15. (c) | 16. (c) | 17. (a) | 18. (d) | 19. (d) | 20. (b) |
| 21. (c) | 22. (b) | 23. (a) | 24. (d) | 25. (b) | 26. (b) | 27. (c) | 28. (d) | 29. (b) | 30. (c) |
| 31. (a) | 32. (c) | 33. (c) | 34. (a) | 35. (b) | 36. (a) | 37. (d) | 38. (d) | 39. (b) | 40. (c) |
| 41. (c) | 42. (a) | 43. (a) | 44. (b) | 45. (d) | 46. (c) | 47. (b) | 48. (c) | 49. (d) | 50. (a) |
| 51. (b) | 52. (d) | 53. (b) | 54. (c) | 55. (c) | 56. (a) | 57. (a) | 58. (d) | 59. (d) | 60. (b) |
| 61. (a) | 62. (b) | 63. (b) | 64. (a) | 65. (a) | 66. (c) | 67. (b) | 68. (d) | 69. (b) | 70. (a) |
| 71. (b) | 72. (d) | 73. (d) | 74. (b) | 75. (a) | 76. (a) | 77. (a) | 78. (d) | 79. (b) | 80. (a) |
| 81. (d) | 82. (a) | 83. (c) | 84. (b) | 85. (b) | 86. (a) | 87. (d) | 88. (a) | 89. (b) | 90. (b) |
| 91. (a) | 92. (c) | 93. (b) | 94. (c) | 95. (c) | 96. (c) | 97. (d) | 98. (b) | 99. (a) | 100. (b) |

HINT & SOLUTIONS



4. (D) Message, information and letter all are the way of communication, but **Material** is a physical object.

5. (A) '6-108', '5-75' and '4-48', is, second number is completely divisible by first number, but in option **'A' (7-145)** second number not completely divisible by first number.

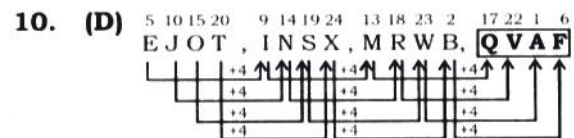
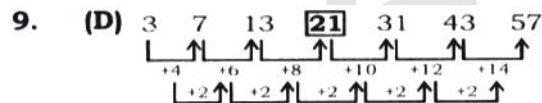
6. (B) 8662, 4628 and 2864 all are even numbers, but **5731**, is an odd number.

7. (D)

Vineyard	Grapes	Brewing
2	1	4
Distillation	Whisky	
5	3	

Hence, the meaningful order is **2, 1, 4, 5, 3**

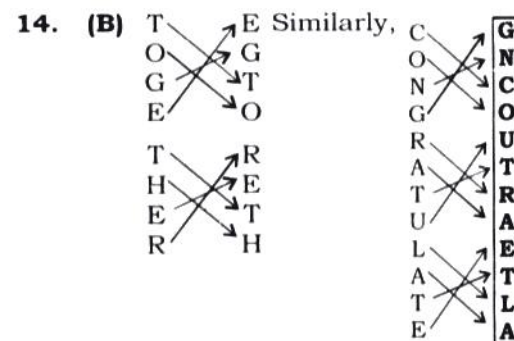
8. (C) (D) Xylophagan- 1
 (A) Xylophagus- 2
 (B) Xylophilous - 3
 (C) **Xylopyrography - 4**



11. (A) 18 Q 12 P 4 R 5 = ?
 $18 \times 12 \div 4 + 5 = ?$ [use 'BODMAS' rule]
 $18 \times 3 \times 5 = ? \Rightarrow 54 + 5 = \mathbf{59}$

12. (B) If his father have four nephew. Then, his cousins (brothers) are **4**.

13. (C) The word **COMB** can't be formed by using the letters of the word 'ACCOMPANIED' because the letter 'B' present in 'COMB' is not present in the word 'ACCOMPANIED'.



15. (C) In first diagram

$$\frac{156}{12} + 2 = 13 + 2 = 15$$

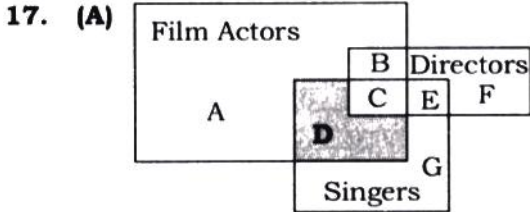
In second diagram

$$\frac{323}{17} + 2 = 19 + 2 = 21$$

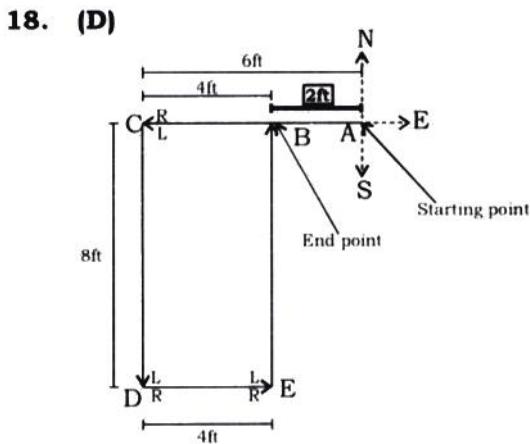
Similarly, in third diagram

$$\frac{525}{25} + 2 = 21 + 2 = \mathbf{23}$$

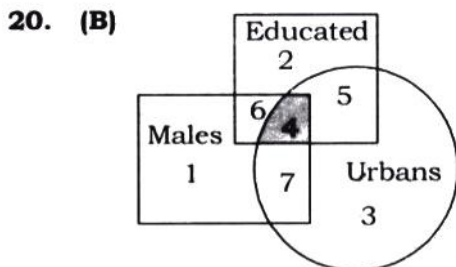
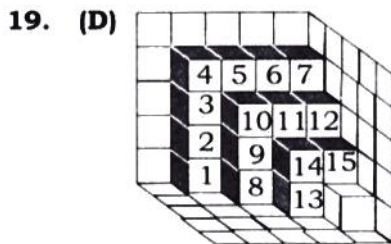
16. (C) $(6 \div 2) + (11 \times 2) \Rightarrow 25$
 $(8 \div 2) + (6 \times 2) \Rightarrow 16$
 Then,
 $(x \div 2) + (5 \times 2) = 16$
 $\frac{x}{2} + 10 = 16 \Rightarrow \frac{x}{2} = 16 - 10$
 $\Rightarrow \frac{x}{2} = 6$
 $\therefore x = 6 \times 2 = \mathbf{12}$



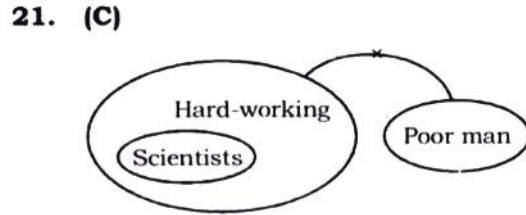
Shaded area **D** shows, those actors who are singer but not director.



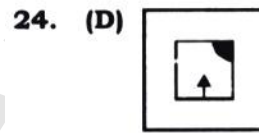
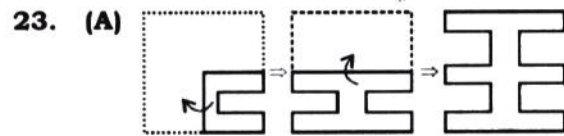
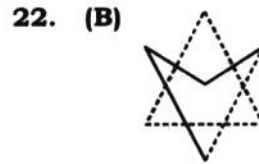
Shourcut:
 $AB = AC (6) - BC (4)$
 $[BC = DE = 4\text{ft because } BCDE \text{ is a rectangle}]$
 $AC = 6 - 4$
 $AC = \mathbf{2\text{ft}}$



Shaded **4** area shows, educated, urban and males.



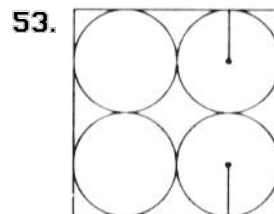
Hence, both conclusions are follows.



25. (B) Solving from the options.
 (A) 74, 47, 03, 45, 02
 (B) **45, 76, 11, 54, 31**
 (C) 57, 64, 20, 46, 11
 (D) 66, 55, 32, 55, 22

51. $\frac{999 \times 996}{999} \times 999 + 996$
 $= \left(999 + \frac{996}{999}\right) \times 999 + 996$
 $= \left[(100 - 1) + \frac{996}{999}\right] \times 999 + 996$
 $= 999000 - 999 + 996 + 996$
 $= 999000 + 993 = 999993$

52. $\sqrt{11.981 + 7\sqrt{1.2996}}$
 $= \sqrt{\frac{11981}{1000} + \frac{114}{100} \times 7}$
 $= \sqrt{\frac{11981 + 798}{1000}} = \sqrt{\frac{19961}{1000}}$
 $= \sqrt{19.961} = 4.367$
 $= 4.5 \text{ (approximate)}$



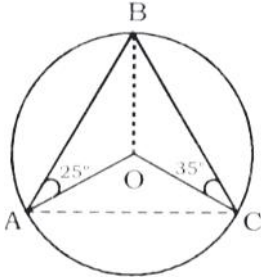
Side of square paper sheet

$$= \sqrt{1225} = 35 \text{ cm}$$

$$\text{Radius of each circle} = \frac{35}{4} \text{ cm}$$

$$\begin{aligned} \therefore \text{Circumference of each circular plate} \\ &= 2\pi r = 2 \times \frac{22}{7} \times \frac{35}{4} \\ &= 11 \times 5 = 55 \text{ cm} \end{aligned}$$

54.



In $\triangle ABO$
 $(\because OA = OB = \text{radius})$

In $\triangle BOC$
 $(\because OB = OC = \text{radius})$

$$\begin{aligned} \angle ABC &= \angle ABO + \angle CBO \\ &= 25^\circ + 35^\circ = 60^\circ \end{aligned}$$

$$\begin{aligned} \angle AOC &= 2\angle ABC \\ &= 2 \times 60^\circ = 120^\circ \end{aligned}$$

$$\therefore \angle AOC = 120^\circ$$

55.
$$\frac{x}{1-x} + \frac{y}{1-y} + \frac{z}{1-z} = 2$$

Adding 3 on both sides

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

$$\frac{x+1-x}{1-x} + \frac{y+1-y}{1-y} + \frac{z+1-z}{1-z} = 5$$

$$\frac{1}{1-x} + \frac{1}{1-y} + \frac{1}{1-z} = 5$$

56.
$$\frac{a_1 + a_2 + a_3}{15} = b$$

$$a_1 + a_2 + a_3 + \dots + a_{15} = 15b$$

$$(a_1 - 101) + (a_2 - 101) + \dots + (a_{15} - 101)$$

$$\begin{aligned} \text{Average} &= \frac{15b - 15 \times 101}{15} \\ \text{Average} &= \frac{15b - 15 \times 101}{15} = b - 101 \end{aligned}$$

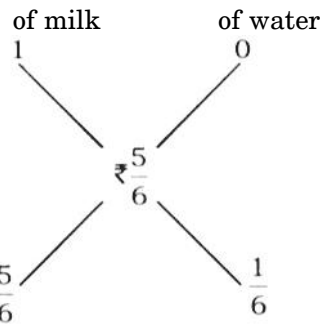
57. Total height = 192m

$$\begin{aligned} \text{Distance climbed in second hour} \\ &= 192 \frac{8-5}{8} \times \frac{1}{8} = 192 \times \frac{3}{8} \times \frac{1}{8} \\ &= 3 \times 3 = 9 \text{ metres} \end{aligned}$$

58. Let, C.P of 1 litre of milk = 1

$$\begin{aligned} \therefore \text{S.P of 1 litre of mixture} &= 1 \\ \text{Gain} &= 20\% \\ \text{C.P of 1 litre of mixture} \\ &= \frac{100}{120} \times 1 = \frac{5}{6} \end{aligned}$$

C.P. of litre C.P. of 1 litre



$$\text{Ratio of milk and water} = \frac{5}{6} : \frac{1}{6} = 5:1$$

$$\begin{aligned} \therefore \% \text{ of the milk in the mixture} \\ &= \frac{5}{6} \times 100 = \frac{250}{3} \% \end{aligned}$$

59. Each installment

$$\begin{aligned} &= \frac{\text{Amount}}{\left[\frac{100}{100+r} \right] + \left[\frac{100}{100+r} \right]^2} \\ &= \frac{12900}{\left[\frac{100}{100+15} \right] + \left[\frac{100}{100+15} \right]^2} \\ &= \frac{12900}{\frac{20}{23} + \frac{400}{529}} = \frac{12900}{\frac{460+400}{529}} \\ &= \frac{12900 \times 529}{860} = 7935 \end{aligned}$$

60. Average speed

$$\begin{aligned} &= \frac{\text{Total Distance}}{\text{Total time}} \\ &= \frac{100 + 1200 + 150}{\frac{1000}{120} + \frac{1200}{300} + \frac{150}{75}} \\ &= \frac{25}{\frac{3}{2350} + 4 + 2} \\ &= \frac{2350 \times 3}{25 + 18} = \frac{7050}{43} \\ &= 163.96 \\ &= 164 \text{ km/hr} \end{aligned}$$

61. Given

$$\begin{aligned} 9 \text{ men} &= 11 \text{ women} \\ \therefore 22 \text{ women} &= 18 \text{ men} \\ \frac{M_1 D_1}{W_1} &= \frac{M_2 D_2}{W_2} \\ \Rightarrow \frac{9 \times 15}{300} &= \frac{36 \times D_2}{800} \\ 9 \times 15 \times 8 &= 36 \times 3 D_2 \\ D_2 &= 10 \text{ days} \end{aligned}$$

62. Medians of triangles

$$\begin{aligned} &= 5 \text{ cm and } 12 \text{ cm} \\ S &= \frac{5+12+13}{2} = 15 \\ \therefore \sqrt{S(S-A)(S-B)(S-C)} \end{aligned}$$

$$= \sqrt{15(15-5)(15-12)(15-13)}$$

$$= \sqrt{15 \times 10 \times 3 \times 2} = 30$$

$$\therefore = 40 \text{ cm}^2$$

63. LCM =120

\therefore Factorize the given LCM
 $= 2 \times 2 \times 3 \times 5 \times 2 = 4(3 \times 5 \times 2)$
 Common factor = 4

So, for the given numbers, the HCF should be multiple of

\therefore Required answer = 25

64. Shopkeeper sells his goods at cost price

Let, CP of 1000 grams goods
 $= 1000$

SP of 850 grams goods
 $= 1000$

CP of 850 grams goods = 850

\therefore Profit = $\frac{150}{850} \times 100 = 18 \frac{11}{17}\%$

65. Downstream (D) Upstream (U)

$$S_M = \frac{S_D + S_U}{2} = \frac{3+1}{2} = 2$$

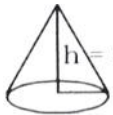
$$S_C = \frac{S_D - S_U}{2} = \frac{3-1}{2} = 1$$

\therefore Required ratio = 2:1

66. It should be on circumcenter**67. 1 sec = 1 drop**

No. of seconds in 90 days
 $= (24 \times 60 \times 60) \times 90 \text{ sec}$

No. of litre wasted = $\frac{75 \times 24 \times 60 \times 60 \times 90}{500}$
 $= 1166400 \text{ ml}$
 $= \frac{1166400}{1000} = 1166.4 \text{ litres}$

68.

$h = 20 \text{ cm/सेमी.}$

$R = 35 \text{ cm/सेमी.}$

Volume of cone = $\frac{1}{3} \pi (35)^2 \times 20$

Volume of sphere = $\frac{4}{3} \pi (35)^3$

\therefore Required percentage

$$= \frac{\text{Volume of cone}}{\text{Volume of sphere}} \times 100$$

$$= \frac{\frac{1}{3} \pi \times (35)^2 \times 20}{\frac{4}{3} \pi (35)^3} = 14 \frac{2}{7}\%$$

69. Quantity of mixture

= 250 litres

Ratio of alcohol and water
 $= 3:7$

Quantity of alcohol = $250 \times \frac{3}{10} = 75$

$$= 250 \times \frac{7}{10} = 175$$

Let quantity of added alcohol

= x litres

$$\therefore \frac{75+x}{175} = \frac{4}{7}$$

$$525 + 7x = 700$$

$$7x = 175$$

$$x = 25$$

\therefore Quantity of added alcohol
 $= 25 \text{ litres}$

70. $a = \sqrt[3]{2 + \sqrt{3}}$

$$a^3 = 2 + \sqrt{3}$$

$$\frac{1}{a^3} = \frac{1}{2 + \sqrt{3}} \times \frac{2 - \sqrt{3}}{2 - \sqrt{3}} = 2 - \sqrt{3}$$

$$\therefore a^3 + \frac{1}{a^3} = 2 + \sqrt{3} + 2 - \sqrt{3} = 4$$

71. $x \sin A + y \cos A = z$

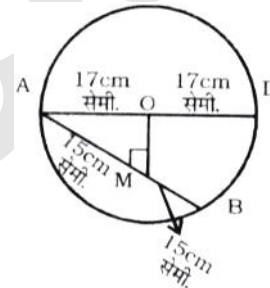
Let $x \cos A - y \sin A = a$

Squaring and adding equation (i) and (ii)

$$x^2 + y^2 = z^2 + a^2$$

$$x^2 + y^2 - z^2 = a^2$$

$$a = \pm \sqrt{x^2 + y^2 - z^2}$$

72.

In $\triangle AOM$

$$(OM)^2 = (17)^2 - (15)^2$$

$$= 289 - 225$$

$$(OM)^2 = 64$$

$$OM = 8$$

\therefore Distance of AB from the centre
 $= 8 \text{ cm}$

73. Total student =800

Percentage of students enrolled in Table tennis and Volleyball
 $= (13 + 11)\% = 24\%$

Total students enrolled in Table tennis and Volleyball

$$= 800 \times \frac{24}{100}$$

$$= 192 \text{ students}$$

74. Required percentage

$$= \frac{22}{21} \times 100$$

$$= 104.76\%$$

75. Required percentage

$$\frac{18+15}{21} = 11:7$$