

MENTAL ABILITY TEST (MAT) SOLUTION

1. (A)
Let A completes 100 m in t sec.
So B completes 8 m in t sec.
So B runs 20 m in 5 sec.

$$\text{B speed} = \frac{20}{5} = 4 \text{ m/s}$$

$$t = \frac{80}{4} = 20 \text{ sec.}$$

$$\text{A speed} = \frac{100}{t} = \frac{100}{20} = 5 \text{ m/s}$$

2. (B)

3. Charge = $\left(\frac{x^2}{100}\right)\% = \left(\frac{12^2}{100}\right)\% = 1.44\%$ decreases

Ans. (A)

4. $x + \frac{1}{x} = N$

$$x + \frac{1}{x} = 2N \quad \dots\dots\dots(1)$$

$$\Rightarrow \frac{x^2 + \frac{1}{x^2}}{2}$$

$$\Rightarrow \frac{\left(x + \frac{1}{x}\right)^2 - 2}{2}$$

$$\Rightarrow \frac{[(2N)^2 - 2]}{2}$$

$$\Rightarrow \frac{4N^2 - 2}{2}$$

$$\Rightarrow 2N^2 - 1$$

Ans. (C)

5. $x^2 - 1$

$$\begin{array}{r}
 x^{45} + x^{43} + \dots + x \\
 \underline{x^{47} + 1} \\
 -x^{47} + x^{45} \\
 \underline{x^{45} + 1} \\
 -x^{45} + x^{43} \\
 \underline{x^{43} + 1} \\
 \vdots \\
 \underline{x^3 + 1} \\
 -x^3 + x \\
 \underline{x + 1}
 \end{array}$$

Ans. (B)

6. $\frac{p}{q} + \frac{q}{p} = 2$

let $\frac{p}{2} = x$

$x + \frac{1}{x} = 2$

$(x - 1)^2 = 0$

$x = 1$

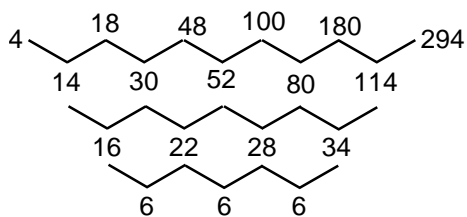
$\frac{p}{q} = 1$

Ans. (B)

7.

Ans. (B)

8.



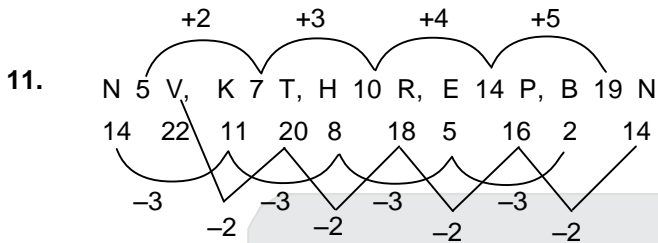
Ans. (C)

9. $30 \quad 68 \quad 130 \quad 222 \quad 350 \quad 520 \quad 738$
 $3^3 + 3 \quad 4^3 + 4 \quad 5^3 + 5 \quad 6^3 + 6 \quad 7^3 + 7 \quad 8^3 + 8 \quad 9^3 + 3$

Ans. (B)

10. 6072 1010 200 48 14 5 3
 $X6+H2$ $X5+10$ $X4+8$ $X3+6$ $X2+4$ $X1+2$

Ans. (A)



Ans. (C) H 10 R

12. 12 Adults = 20 Children
 20 Children = 12 Adults
 5 Children = $\frac{12}{20} \times 5 = 3$ Adults

Ans. (A)

13. Pattern – Sum of place values from the end.

H E $\Rightarrow 41$

19 + 22

S H E $\Rightarrow 49$

8 + 19 + 22

C O M E $\Rightarrow 72$

24 + 12 + 14 22

Ans. (C)

14. Whale – a mamal
 fish – not a mamal
 crocodile – reptile

Ans. D

15. (A)

16. (C)

17. (C)

18. (D)

19. In each column the number at the bottom is the sum of squares of other three numbers.

Ans. (A)

20.

38	44	42
23	55	28
37	?	39

In each row $\rightarrow (42 - 38) \times 11 = 44$

$$(28 - 23) \times 11 = 55$$

$$(39 - 37) \times 11 = 22$$

Ans. (C)

21. (B)

In each row

$$2^{\text{nd}} \text{ row} - (9 + 17) \times 2 + 17 = 69$$

$$3^{\text{rd}} \text{ row} - (13 + 11) \times 2 + 11 = 59$$

$$1^{\text{st}} \text{ row} - (x + 13) \times 2 + 13 = 49$$

$$(x + 13) \times 2 = 36$$

$$x + 13 = 18$$

$$x = 5$$

22. (C)

Pattern - In each row the sum of squares of first three numbers is equal to the fourth number of the row.

23 to 26.

Let E = 100

then A = 225

B = 112.5

C = 25

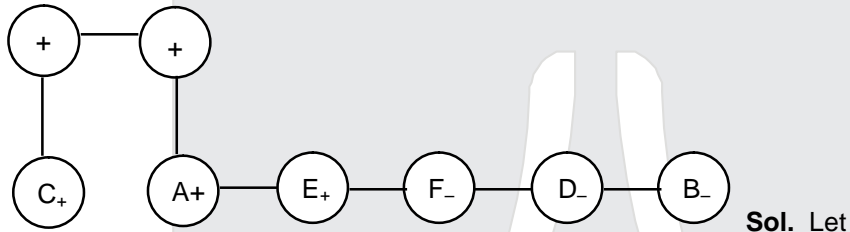
D = 50

C < D < E < B < A

23. (C)
24. (A)
25. (B)
26. (A)

27 to 30.

27. (B)
28. (D)
29. (C)
30. (A)



31 to 35

31. (D)
32. (D)
33. (C)
34. (D)
35. (D)

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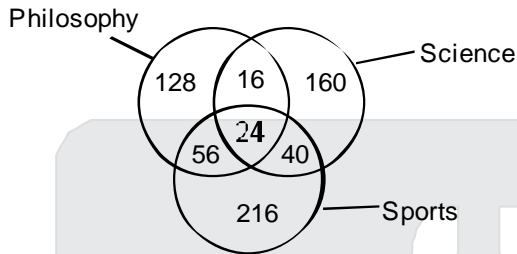
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36. $b = 3g$
Total students = $b + g = 39 + 9 = 49$
So the number of students is a multiple of 4.
Ans. (C)
37. (D)
38. $264 \div 2 = 132 = D \ 1 + 3 + 2 = 6$
 $870 \div 3 = 290 = D \ 2 + 9 + 0 = 11$
 $735 \div 5 = 147 = D \ 1 + 4 + 7 = 12$
Ans. (B)

39. (A)
Suman – 3rd (g)
Amit – 5th (b)
(4b + 2g)
7 Amit
8 Suman



40 to 44.

40. **Participating = 640**
Not Participating = 240

$$\frac{240}{880} \times 100 = 27.27\%$$

Ans. (D)

41. $128 + 160 + 216 = 504$

$$\frac{504}{880} \times 100 = 57.27\%$$

Ans. (C)

42. $56 + 24 + 16 + 40 = 136$

Ans. (C)

43. $\frac{16}{128} = \frac{1}{8}$

Ans. (A)

44. $\frac{40}{160} = \frac{1}{4}$

Ans. (B)

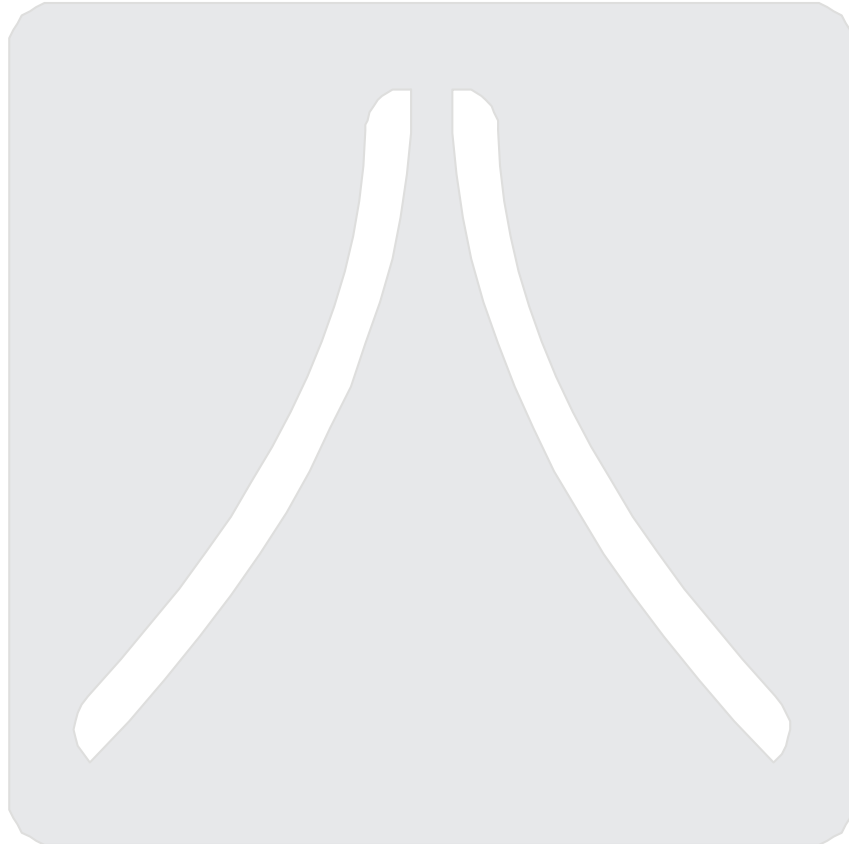
45 to 47

Ravi	Kunal	Sachin	Gaurav	Sear
Hockey	Hockey	Hockey	Volleyball	Basketball
Volleyball	Volleyball	Basketball	Cricket	Football
Baseball	Cricket	Baseball	Baseball	
		Football	Football	

45. (B)

46. (C)

- 47. (A)
- 48. (A)
- 49. (B)
- 50. (B)



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