



## UNIFIED CYBER OLYMPIAD

**CLASS - 8**  
**Question Paper Code : 30119**

### KEY

1. D	2. B	3. A	4. C	5. D	6. A	7. A	8. D	9. C	10. B
11. A	12. A	13. C	14. C	15. D	16. A	17. A	18. D	19. D	20. C
21. C	22. A	23. A	24. C	25. B	26. C	27. C	28. C	29. A	30. C
31. B	32. A	33. A	34. C	35. A	36. D	37. D	38. C	39. D	40. D
41. D	42. A	43. D	44. B	45. C	46. B	47. B	48. B	49. A	50. B

### SOLUTIONS

#### MENTAL ABILITY

01. (D) Group like denominators

$$\frac{3}{8} + \frac{9}{8} = \frac{12}{8} = \frac{3}{2}$$

$$\frac{7}{2} + \left(\frac{-3}{2}\right) = \frac{4}{2} = 2$$

$$\left(-\frac{3}{5}\right) + \frac{6}{5} = \frac{3}{5}$$

Now add all

$$\frac{3}{2} + 2 + \frac{3}{5}$$

Convert all to common denominator  
(LCM of 2 and 5 is 10)

$$\frac{3}{2} = \frac{15}{10}$$

$$2 = \frac{20}{10}$$

$$\frac{3}{5} = \frac{6}{10}$$

$$\text{Add } \frac{15 + 20 + 6}{10} = \frac{41}{10}$$

02. (B)  $CP\left(\frac{100+15}{100}\right) = ₹322$

$$\therefore CP = ₹322 \times \frac{100}{115}$$

CP of the bouquet = ₹280

$$SP \text{ of bouquet} = CP\left(\frac{100+g}{100}\right) = ₹280$$

$$\times \frac{125}{100} = ₹350$$

03. (A)  $P = \text{Rs. } 10000, \quad R = 8\%$

$T = 1.25 \text{ years (1\% years)}$

$$SI = \frac{10000 \times 8 \times 1.25}{100} = 1000$$

04. (C) Rate of interest per quarter =  $\frac{8\%}{4} = 2\%$

$$\text{Amount for 9 months} = p\left(1 + \frac{r}{100}\right)^3$$

$$= \text{Rs. } 2500\left(1 + \frac{2^1}{100 \times 50}\right)^3$$

$$= \text{Rs. } 2500^{50^1} \times \frac{51}{50} \times \frac{51}{50} \times \frac{51}{50}$$

$$= \text{Rs. } 2653.02$$

05. (D) Amount after  $2\frac{3}{4}$  years

$$= ₹ \left[ 31250 \times \left(1 + \frac{8}{100}\right)^2 \times \left\{1 + \frac{\frac{3}{4} \times 8}{100}\right\} \right]$$

$$= ₹ \left[ 31250 \times \left(\frac{27}{25}\right)^2 \times \left(\frac{53}{50}\right) \right]$$

$$= ₹ \left[ 31250 \times \frac{27}{25} \times \frac{27}{25} \times \frac{53}{50} \right]$$

$$= ₹ 38637$$

$$\therefore \text{Amount} = ₹ 38637$$

Hence, compound interest

$$= ₹ (38637 - 31250) = ₹ 7387$$

06. (A) This is like saying

$$2026^{2026} \times 2026 = 2026^{2026+1} = 2026^{2027}$$

(Adding the same term 2026 times is the same as multiplying it by 2026.

Final answer :  $2026^{2027}$

07. (A)  $6x^2 + \sqrt{5}x - 60 = 6x^2 + 9\sqrt{5} - 8\sqrt{5}x - 60$

$$= 3x(2x + 3\sqrt{5}) - 4\sqrt{5}(2x + 3\sqrt{5})$$

$$= (2x + 3\sqrt{5})(3x - 4\sqrt{5})$$

08. (D) Square the equation  $5x - 3y = 9$

$$(5x - 3y)^2 = 81$$

$$25x^2 + 9y^2 - 30xy = 81$$

Substitute  $xy = 7$

$$25x^2 + 9y^2 - 30(7) = 81$$

$$25x^2 + 9y^2 - 210 = 81$$

Solve for  $25x^2 + 9y^2$

$$25x^2 + 9y^2 = 210 + 81 = 291$$

09. (C) Given  $3x^2 - 1 = 0$

$$3x^2 = 1$$

$$x^2 = \frac{1}{3}$$

$$x = \pm \sqrt{\frac{1}{3}} = \pm \frac{1}{\sqrt{3}}$$

10. (B) Step 1 : Expand all terms

$$= 10ap - 20aq - 20bp + 40bq - 60cq + 30cp$$

Group like terms

$$(10ap + 30cp - 20bp) + (-20aq + 40bq - 60cq)$$

$$= 10(p)(a - 2b + 3c) - 20(q)(a - 2b + 3c)$$

$$= 10(p - 2q)(a - 2b + 3c)$$

$$\begin{aligned}
 11. (A) \quad nx^2 + \frac{1}{x^2} - 2 \left( x - \frac{1}{x} \right) - 37 \\
 = x^2 + \frac{1}{x^2} - 2 - 2 \left( x - \frac{1}{x} \right) - 35 \\
 = \left( x - \frac{1}{x} \right)^2 - 2 \left( x - \frac{1}{x} \right) - 35 \\
 = a^2 - 2a - 35 \text{ where } a = x - \frac{1}{x} \\
 = a^2 - 7a + 5a - 35 \\
 = a(a - 7) + 5(a - 7) \\
 = (a - 7)(a + 5) \\
 = \left( x - \frac{1}{x} - 7 \right) \left( x - \frac{1}{x} + 5 \right)
 \end{aligned}$$

12. (A) Area of the hexagon  
 = Area of the trapezium ABQP  
 + area of the trapezium PQDC

$$\begin{aligned}
 &= \frac{1}{2} \times 12 (32 + 16) \text{ cm} \\
 &+ \frac{1}{2} \times 18 \text{ cm} (32 + 16) \text{ cm}
 \end{aligned}$$

$$\begin{aligned}
 &= 48 \text{ cm} (6 \text{ cm} + 9 \text{ cm}) \\
 &= 48 \times 15 \text{ cm}^2 = 720 \text{ cm}^2
 \end{aligned}$$

13. (C) Let the sides be a, b, c

$$ab = x, bc = y, ca = z$$

$$\text{Multiply } ab \cdot bc \cdot ca = xyz$$

$$\Rightarrow (abc)^2 = xyz$$

$$\Rightarrow abc = \sqrt{xyz}$$

14. (C) Find the nearest perfect squares:

$$28^2 = 784$$

$$29^2 = 841$$

Difference:

$$825 - 784 = 41$$

$$\begin{aligned}
 15. (D) \quad \frac{\sqrt{x+4} + \sqrt{x-4}}{\sqrt{x+4} - \sqrt{x-4}} \times \frac{\sqrt{x+4} + \sqrt{x-4}}{\sqrt{x+4} + \sqrt{x-4}} = 2 \\
 \Rightarrow \frac{(\sqrt{x+4} + \sqrt{x-4})^2}{(\sqrt{x+4})^2 - (\sqrt{x-4})^2} = 2 \\
 \Rightarrow \frac{x+4+x-4+2\sqrt{x^2-16}}{x+4-x+4} = 2 \\
 \frac{2(x + \sqrt{x^2-16})}{8} = 2 \\
 x + \sqrt{x^2-16} = 8
 \end{aligned}$$

$$\sqrt{x^2-16} = (8-x)$$

$$\Rightarrow (\sqrt{x^2-16})^2 = (8-x)^2$$

$$x^2 - 16 = 64 + x^2 - 16x$$

$$16x = 64 + 16 = 80$$

$$x = \frac{80}{16} = 5$$

$$x = 5$$

### REASONING





16. (A) The rule of the respective movements of the letters is +2 and -2.

$$A \xrightarrow{+2} C \qquad E \xrightarrow{+2} G$$

$$Z \xrightarrow{+2} X \quad \text{Similarly} \quad V \xrightarrow{+2} T$$

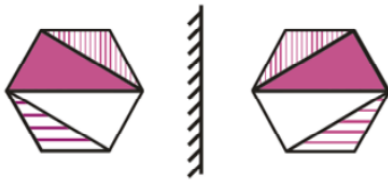
$$B \xrightarrow{+2} D \qquad F \xrightarrow{+2} H$$

$$Y \xrightarrow{+2} W \qquad U \xrightarrow{+2} S$$

17. (A)  and  are moving 90° CW while  and  are 90° moving ACW. So next figure is option (A).

18. (D) The letters of the word are written in a reverse order and then each letter is moved one step backward to obtain the code.

19. (D)



20. (C)



21. (C) 5,8,9 are objects having both base as well as upper lid.

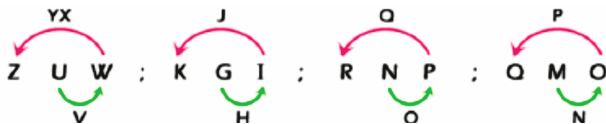
2,3,6 are objects having base but not upper lid.

1,4,7 are objects which have neither a base nor an upper lid attached to them.

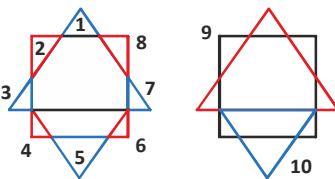
22. (A)



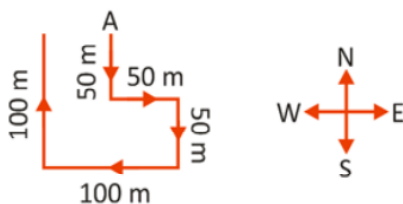
23. (A) Except in option (A), in all other groups there is a gap of one letter between first and third letter as in the alphabet.



24. (C)



25. (B) As Irfan faces towards East and he walks turning to his right, therefore, he starts to walk in the direction of South. His movements are as follows:



Hence, he will be in the direction of West from his starting point.

26. (C) The numbers are written according to the rule  $n^3 + 1$ ;  $n$  being 1, 2, 3, etc.

$\therefore$  The missing number is  $3^3 + 1$  i.e. 28.

Hence, the answer is (C).

27. (C) In the figure there are 34 columns containing 2 cubes each.

$\therefore$  Total number of cubes =  $(34 \times 2) = 68$

28. (C) Blackberry

29. (A) The correct answer is friends and friends and is the correct answer because sand is hidden between friends and and

30. (C)



### COMPUTERS

31. (B) A symbol is a converted object that can be reused in a movie and allows effects like fade, rotation and flip.

32. (A) Altavista was a web search engine. Macafee, Kaspersky and Norton are antivirus software.

33. (A) The first operational computer network in the world was the ARPANET for the United States Department of Defense.

34. (C) `<BODY BGCOLOR="GREEN">`

35. (A) We can use bluetooth to send few photographs and songs by inter connecting mobile phone using short range wireless connection.

36. (D) A DO ....LOOP can run WHILE a condition is true or until a condition becomes true.

37. (D) Some popular DBMS software are MS Access, Clipper, and FoxPro

38. (C) Alt + F4

39. (D) To change the background colour to blue, we use `<BODY BGCOLOR="#0000FF">` or `<BODY BGCOLOR=BLUE>`

40. (D) All of these points should be followed.

41. (D) Website is a collection of web pages under a single domain name.

42. (A) A Braille printers.

43. (D) All of the above option (D).
44. (B) IF-THEN-ELSE is a conditional statement not a loop.
45. (C) A landscape is not a component of a chart.

**ENGLISH**

46. (B) blame → Synonym of reproach.
47. (B) had left, wouldn't have → Past perfect + conditional perfect.
48. (B) sponge → Elastic thing example like fragile:glass.
49. (A) adjective, adverb → loud describes noun, calmly describes verb.
50. (B) but → Idiom: everything but a good voice.