UNIFIED COUNCIL
Foundation for Success

UNIFIED COUNCIL OLYMPIADS

UCO Unified Cyber Olympiad

UNIFIED CYBER OLYMPIAD (UPDATED)

CLASS - 8

Question Paper Code : 3O119

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. B	38. C	39. D	40. D
41. Del	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)

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

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

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

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

$\times\frac{125}{100} = ₹350$

03. (A) P = Rs. 10000, R = 8%

T = 1.25 years (1% years)

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

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

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

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

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

= 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

$\therefore$ 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) $6x^2+\sqrt{5}x-60 = 6x^2+9\sqrt{5}-8\sqrt{5}x-60$

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

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

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)

11. (A) $nx^2 + \frac{1}{x^2} - 2\left(x - \frac{1}{x}\right) - 37$

$= x^2 + \frac{1}{x^2} - 2 - 2\left(x - \frac{1}{x}\right) - 35$

$= \left(x - \frac{1}{x}\right)^2 - 2\left(x - \frac{1}{x}\right) - 35$

$= a^2 - 2a - 35$ where $a = x - \frac{1}{x}$

$= a^2 - 7a + 5a - 35$

$= a(a - 7) + 5(a - 7)$

$= (a - 7)(a + 5)$

$= \left(x - \frac{1}{x} - 7\right)\left(x - \frac{1}{x} + 5\right)$

12. (A) Area of the hexagon

= Area of the trapezium ABQP

+ area of the trapezium PQDC

$= \frac{1}{2} \times 12\ (32 + 16)$ cm

$+ \frac{1}{2} \times 18$ cm $(32 + 16)$ cm

= 48 cm (6cm + 9 cm)

= 48 × 15 cm^2 = 720 cm^2

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

ab = x, bc = y, ca = z

Multiply ab. bc. 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

15. (D) $\frac{\sqrt{x+4} + \sqrt{x-4}}{\sqrt{x+4} - \sqrt{x-4}} \times \frac{\sqrt{x+4} + \sqrt{x-4}}{\sqrt{x+4} + \sqrt{x-4}} = 2$

$\Rightarrow \frac{\left(\sqrt{x+4} + \sqrt{x-4}\right)^2}{\left(\sqrt{x+4}\right)^2 - \left(\sqrt{x-4}\right)^2} = 2$

$\Rightarrow \frac{x + 4 + x - 4 + 2\sqrt{x^2 - 16}}{x + 4 - x + 4} = 2$

$\frac{2\left(x + \sqrt{x^2 - 16}\right)}{8} = 2$

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

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

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

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

$16x = 64 + 16 = 80$

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

$x = 5$

REASONING

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

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

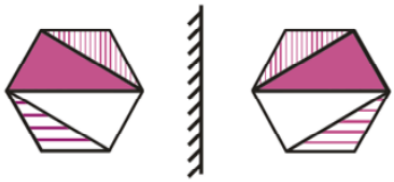
Z $\xrightarrow{+2}$ X Similarly V $\xrightarrow{+2}$ T

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

Y $\xrightarrow{+2}$ W 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.

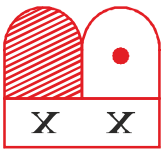
19. (D) 

20. (C)

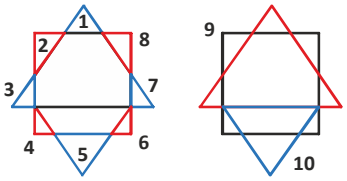
21. (C) 5,8,9 are objects having both base as well as upper lid.

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

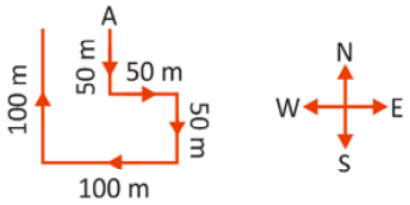
1,4,7 tare objects which have neither a base nor an upper lid attached to them.

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 33 + 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 × 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. (B) Clipper is not a DBMS software.

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. (Delete)

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.