



UNIFIED COUNCIL

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UNIFIED CYBER OLYMPIAD - UC335 (UPDATED)

Solutions for class : 9

Mental Ability

1. (C) $x + y = 2017$ is an odd number.
Hence in x and y one is odd other is even.
 \therefore If x is odd, then y is even
 $\Rightarrow (-1)^{odd} + (-1)^{even} = 0$
If x is even, then y is odd
 $\Rightarrow (-1)^{even} + (-1)^{odd} = 0$
2. (A) $\frac{99}{891} = \frac{1}{891} \times 99 = \frac{1}{9} = 0.11111\dots$
3. (C) $a^3 = 117 + b^3$ and $a = 3 + b \Rightarrow a^3 - b^3 = 117$ and $a - b = 3$.
 $(a - b)^3 = a^3 - b^3 - 3ab(a + b)$
 $\Rightarrow 27 = 117 - 3ab(3)$
 $\Rightarrow 27 = 117 - 9ab$
 $\Rightarrow ab = 10$
 $(a + b)^2 - (a - b)^2 = 4ab \Rightarrow (a + b)^2 = 4 \times 10 + (3)^2$
 $= 40 + 9 = 49$
 $\Rightarrow a + b = \sqrt{49} = \pm 7$
4. (C) $\left(x^4 - \frac{3}{8}\right)\left(x^n + \frac{16}{17}\right) = x^{4+n} + \dots\dots\dots$
 $\therefore 4 + b = 12$
 $\Rightarrow n = 12 - 4$
 $\Rightarrow n = 8$
5. (B) $a + b + c = 0 \Rightarrow a + b = -c$ (or)
 $\Rightarrow b + c = -a$ (or)
 $c + a = -b$
Substituting these values in the given equation
 $(a + b - c)^3 + (c + a - b)^3 + (b + c - a)^3$
 $= (-2c)^3 + (-2b)^3 + (-2a)^3$
 $= -8(a^3 + b^3 + c^3)$
 $= -8 \times 3abc \quad [\because a + b + c = 0]$
 $= -24 abc.$

6. (D) $x - \frac{7}{x-3} = 3 - \frac{7}{x-3}$
 $\Rightarrow x = 3$
But putting $x = 3$, we get denominator $x - 3 = 0$ which cannot be possible.
So there is no solution of the given equation.
7. (D) $1 + \frac{1}{x} = \frac{x+1}{x}$
 $\Rightarrow \frac{x+1}{x} = \frac{x+1}{x}$
 \Rightarrow This is an identity, so it is true for every value of x except zero.
8. (C) Clearly $3^2 + 4^2 = 5^2 \Rightarrow x = 2$
9. (D) Water flows out in one minute
 $= \frac{2 \times 1000}{60} m = \frac{100}{3} m$
 $l = \frac{100}{3} m, h = 3m$ and $b = 40m$
 \therefore Water that falls into the sea in one minute
 $= lbh = \frac{100}{3} \times 3 \times 40 \text{ cu m}$
 $= 4000 \text{ cu m}.$
10. (B) $2 \times \frac{1}{2} \times 15 \times 6.8 = 102 \text{ sq.cm}$
11. (C) $H + \sqrt{H^2 + 4A}$
12. (C) $5x - 4x = 24 \Rightarrow x = 24$, Numbers are 96,120
13. (D) $\frac{1}{2}|-1(P+1) + 2(-1-3) + 5(3-P)| = 0$
 $\Rightarrow P = 1$
14. (B) Largest angle is 75° .
15. (C) Interior angles on the same side of the transversal are supplementary.

Reasoning



17. (D) $H \rightarrow N, N \rightarrow O, N \rightarrow R, O \rightarrow R$

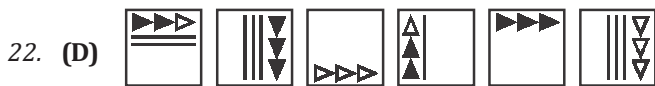
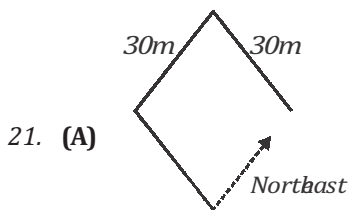
18. (D) M is square, N is triangle.

\diamond is C , \circ is B , pentagon is D .

Hence, code for the given figure is MC .

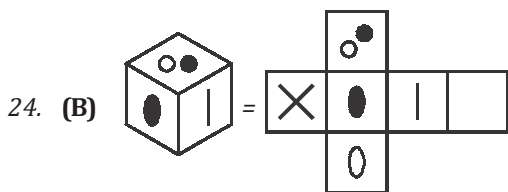
19. (C) The centre 8 squares have no face coloured.

20. (B) In alternate images the pair of symbols move positions.



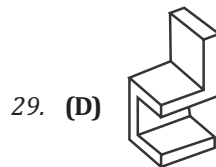
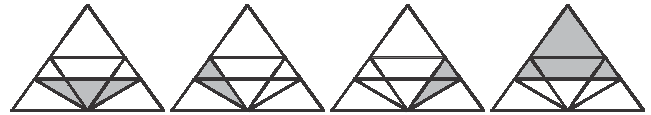
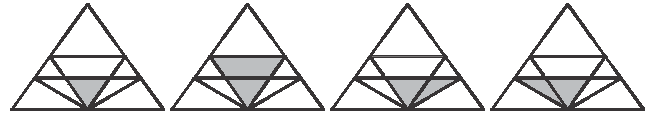
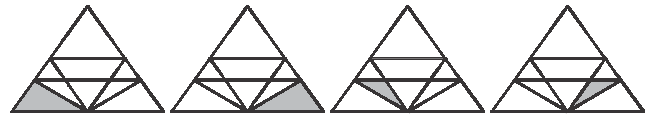
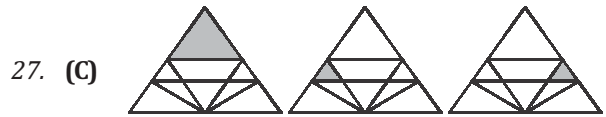
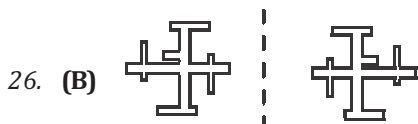
Initially number of lines are equal to the number of dark triangles and then white triangle is equal to the number of lines.

23. (C) Mother



25. (D) $\frac{X}{L} = \frac{24}{12} = 2;$ $\frac{R}{I} = \frac{18}{9} = 2;$

$\frac{H}{D} = \frac{8}{4} = 2;$ $\frac{D}{B} = \frac{4}{2} = 2$



30. (B) $9 - 7 = 2;$ $7 - 5 = 2$
 $10 - 7 = 3;$ $13 - 10 = 3$
 $7 - 6 = 1;$ $6 - 5 = 1$
 $9 - 5 = 4;$ $5 - 1 = 4$

Computers

31. (A) 32. (C) 33. (B) 34. (D) 35. (D)
36. (C) 37. (A) 38. (C) 39. (A) 40. (A)
41. (D) 42. (B) 43. (A) 44. (B) 45. (D)

English

46. (D) 47. (C) 48. (B) 49. (C) 50. (B)