UNIFIED COUNCIL

An ISO 9001:2008 Certified Organisation

UCO Unified Cyber Olympiad

UNIFIED CYBER OLYMPIAD - UC335 (UPDATED)

Solutions for class : 8

Mental Ability

1. **(A)** $(4x + y + z)(x + y - z)$

$= 4x^2 + 4xy - 4xz + xy + y^2 - yz + xz + yz - z^2$

$= 4x^2 + y^2 - z^2 + 5xy - 3xz$

5 terms.

2. **(C)** Difference $= P\left(\frac{R}{100}\right)^2$

$25 = P\left(\frac{5}{100}\right)^2$

$\Rightarrow P = ₹\ 10{,}000$

3. **(A)** $2^{2^x} = 16^{2^{3x}}$

$2^{2^x} = 2^{2^{3x+2}}$

$\Rightarrow 2x + 2 = x \quad or \quad x = -1$

4. **(C)** $(2 - x)(5 - 3x)(1 - 7x)$

$(10 - 6x - 5x + 3x^2)(1 - 7x)$

Coefficient of $x^2 = 77 + 3 = 80$

5. **(C)** $0.3 = \frac{3}{10}$

Multiplicative inverse of $\frac{3}{10}$ is $\frac{10}{3} = 3\frac{1}{3}$.

6. **(C)** Each external angle $= 180 - 165 = 15°$

Sum of all triangles $= 360$

No. of sides $= \frac{360}{15} = 24$

7. **(D)** $\left[100 - \left(100 \times \frac{80}{100} \times \frac{90}{100} \times \frac{85}{100}\right)\right]\%$

$= \left[100 - \left(\frac{2 \times 9 \times 17}{5}\right)\right]$

$= 38.8\%$

8. **(C)** $90 \times 300 = 27000 = (30)^3$

9. **(B)** Its perimeter $= 3a$ m and

Area $= \frac{\sqrt{3}}{4} a^2$ sq. m

$\frac{\sqrt{3}}{4} a^2 = 3a \quad or \quad \frac{\sqrt{3}}{4} a = 3$

$\Rightarrow a = 4\sqrt{3}\,m$

10. **(B)** Among the given options (C) is ruled out others 33% & above must be for an obtuse angle. Hence only possible option is (B).

11. **(D)** $416 = P\left(1 + \frac{3 \times 16}{100 \times 12}\right)$

$416 = P\left(1 + \frac{4}{100}\right)$

$\Rightarrow P = ₹\ 400$

12. **(B,C)** $x^2 + y^2 + 2xy - z^2$

$(x + y)^2 - z^2$

$(x + y + z)(x + y - z)$

13. **(D)** $6449 - 49 = 6400$

$\sqrt{6400} = 80$

14. **(B)** 21 – 50 p coins

7 – 25 p coins

total 28 coins costing $0.25 \times 7 + 21 \times 0.50$

$= 1.75 + 10.50$

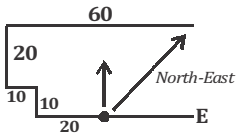
$= ₹\ 12.25$

15. **(B,C)** $0 \div$ (any number except 0) $= 0$

Reasoning

16. **(B)** *Elements inter change starting with 1st rows. i.e., then 2nd row next along columns 1st and then 2nd column.*

17. **(D)** *North-east*



18. **(C)** *2 + 1 + 4 + 3 = 10*

5 + 6 + 4 + 1 = 16

5 + 6 + 3 = 14

10 + 16 + 14 = 40

19. **(C)** *Option (C) is not similar.*

20. **(A)** *Following changes take place.*

- *Right bottom shape is moved to left top.*
- *Left top move to the centre with enlarged size.*
- *Centre shape moves to the right bottom with diminished size.*

21. **(A)** *First two letters being same, compare third letter in each. We can find that actuate will be the fourth word.*

22. **(A)** *E is the code for* ○

F is the code for ●

G is the code for ▨

✦ *is the code for X*

2 ✦ *is the code for Y*

3 ✦ *is the code for Z*

Hence code for the given shape is FZ

23. **(D)** *(8 × 3) + 6 = 30*

(7 × 4) + 21 = 49

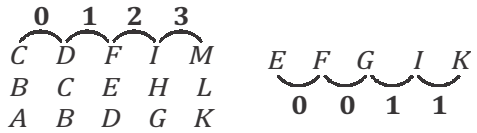
32 – 15 = 17

24. **(A)** *Following changes take place*

- *Shades of right top and left bottom interchange or every alternate triangle and square shaded.*
- *A circle is added each time alternately at right bottom and left top.*

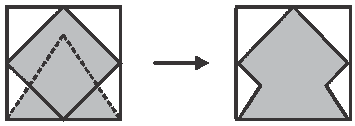
25. **(A)**

26. **(A)**

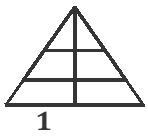


27. **(B)**

28. **(D)**



29. **(B)** *3 × 3 = 9 Triangles.*



30. **(C)** *Option (C) cannot be made with the two blocks.*

Computers

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

36. **(D)** 37. **(B)** 38. **(C)** 39. **(A)** 40. **(B)**

41. **(Del)** 42. **(Del)** 43. **(B)** 44. **(C)** 45. **(C)**

English

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

The End