

## Section : I - Aptitude and Logical Reasoning

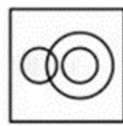
1. Select the Venn diagram that best represents the given set of classes. Currencies, Yuan, Baht

(1)



(a) 4

(2)



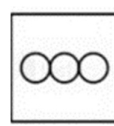
(b) 2

(3)



(c) 1

(4)



(d) 3

2. In a group discussion A, B, C, D, E and F are sitting around a rectangular table

A is sitting on a side alone

B, C are sitting on the same side.

F is facing A

D is the immediate left to F

C is facing D

1. Who is immediate right of A?

2. Who is between B and F ?

(a) 1. D 2.E

(b) 1. A 2. D

(c) 1. E 2. C

(d) 1. E 2. A

3. A's mother is sister of B and daughter of C. D is daughter of B and sister of E. How is C related to E?

(a) Either Grandfather or Grandmother

(b) Father

(c) Aunt

(d) Mother

4. Joe is walking towards north for 15 miles, turns left and walks another 10 miles. He then turns right and walks 10 miles. Now he again turns right and walks 30 miles. Which direction is he from starting point ?

(a) South-East

(b) South-West

(c) North-East

(d) North-west

5. If FIRE is coded as '#\*?%', then FREEZE will be coded as

(a) %%%?%^

(b) ??%%#\*

(c) ???%#@

(d) #&%%?\*

## Section : II - Mathematics

6. If  $10^x = 64$ , what is value of  $10^{\frac{x}{2}+1}$

(a) 70

(b) 8

(c) 80

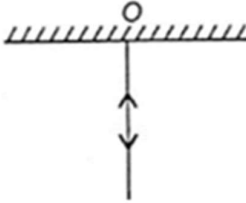
(d) None of these

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7. If  $x = 8^{2/3} \cdot 16^{-1/4}$ , then  $x^2 =$   
 (a)  $1/2$  (b)  $1/4$  (c) 2 (d) 4
8. Which statement is true?  
 (a)  $\frac{3}{-4} > \frac{2}{-3}$  (b)  $\frac{-5}{6} < \frac{-4}{5}$  (c)  $\frac{-2}{5} = 0.4$  (d)  $\frac{-1}{3} > \frac{-1}{4}$
9. Find square root of  $576x^4y^8z^2$ .  
 (a)  $26x^2y^4z$  (b)  $26x^3y^4z$  (c)  $24x^2y^4z$  (d)  $24x^3y^4z$
10. If  $4^x = 64$  and  $3^y = 81$ , then  $\frac{x}{y} = :$   
 (a)  $\frac{3}{2}$  (b)  $\frac{2}{3}$  (c)  $\frac{4}{3}$  (d)  $\frac{3}{4}$
11. Simplify:  $(5^{-1} + 2^{-2})^{-1} :$   
 (a)  $\frac{4}{9}$  (b)  $\frac{9}{4}$  (c)  $\frac{20}{9}$  (d)  $\frac{9}{20}$
12. If  $3^a = 81$  and  $a^b = 16$ , then  $b = :$   
 (a) 2 (b) 3 (c) 4 (d) 5
13. The product of the following fractions is :  $\left(1 - \frac{1}{3}\right)\left(1 - \frac{1}{4}\right)\left(1 - \frac{1}{5}\right) \dots \left(1 - \frac{1}{13}\right)$   
 (a)  $\frac{1}{6}$  (b)  $\frac{1}{13}$  (c)  $\frac{2}{13}$  (d)  $\frac{1}{26}$
14. If  $x = \left(\frac{5}{8}\right)^{-2} \times \left(\frac{12}{15}\right)^{-2}$ , find the value of  $x^{-3} :$   
 (a)  $\frac{1}{4}$  (b)  $\frac{1}{16}$  (c)  $\frac{1}{64}$  (d) 64
15. Which of the following numbers is divisible by 6?  
 (a) 97234 (b) 16524 (c) 3825 (d) 52618

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**Section : III - Science**

16. A block of iron dimensions  $2\text{m} \times 0.5\text{m} \times 0.25\text{m}$ . The density of iron is  $7.8\text{ g cm}^{-3}$ . Find the mass of block.  
 (a) 1095 kg (b) 0.00195 kg (c) 195 kg (d) 1950 kg
17. A car is moving with speed 54 km/hr. Its speed in CGS units can be given as \_\_\_\_\_.  
 (a) 15 m/s (b) 15 cm/s (c) 150 cm/s (d)  $1.5 \times 10^3\text{ cm/s}$
18. A plane mirror forms a virtual image. The distance between Maria and her image produced by a plane mirror is 10m. How much distance should she move in order to get the distance of 5m between herself and her image?  
 (a) 2.5 m away from the mirror (b) 2.5 m towards the mirror  
 (c) 5 m away from the mirror (d) 5 m towards the mirror
19. Which of the following is natural source of light?  
 (a) Electric Lamp (b) Tube Light (c) Torch (d) The Sun
20. What is the angle of incidence and angle of reflection in the given figure?  
  
 (a)  $360^\circ$  (b)  $180^\circ$  (c)  $90^\circ$  (d)  $0^\circ$
21. The angle between an incident ray and the plane mirror is  $30^\circ$ . The total angle between the incident ray and reflected ray will be:  
 (a)  $30^\circ$  (b)  $60^\circ$  (c)  $90^\circ$  (d)  $120^\circ$
22. What is heat transfer?  
 (a) Flow of thermal energy from low-temperature reservoir to high-temperature reservoir  
 (b) Flow of thermal energy in the form of heat from high-temperature reservoir to low-temperature reservoir  
 (c) Flow of thermal energy irrespective of reservoir temperature  
 (d) None of the above

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23. Which of the following is not a method of heat transfer?  
 (a) Conduction                      (b) Condensation                      (c) Convection                      (d) Radiation
24. Iron ball is heated, percentage increase will be largest in  
 (a) Diameter    (b) Surface Area  
 (c) Volume    (d) More than one of the above
25. Which of the following affects the thermal expansion of liquids?  
 (a) Volume of the liquid    (b) The rise in temperature  
 (c) Nature of the liquid    (d) More than one of the above
26. Electronic configuration of Ca.  
 (a) 2, 8, 8, 2                      (b) 2, 8, 8, 1                      (c) 2, 8, 10                      (d) 2, 6, 4
27.  ${}_6\text{C}^{12}$ ,  ${}_6\text{C}^{13}$  are  
 (a) isotones                      (b) isobars                      (c) isotopes                      (d) none
28.  $\text{CN}^-$  and  $\text{N}_2$  are  
 (a) isobars                      (b) isoelectronic                      (c) isotopes                      (d) none
29. The property of metals that allows them to be drawn into thin wires is called:  
 (a) Malleability                      (b) Ductility                      (c) Sonority                      (d) Conductivity
30. Which of the following is a non-metal that is liquid at room temperature?  
 (a) Mercury                      (b) Bromine                      (c) Iodine                      (d) Chlorine
31. Which of the following is mixture?  
 (a) Water                      (b) Air                      (c) Common salt                      (d) Plaster of Paris
32. How would you separate a mixture of iron filings and sulfur?  
 (a) Filter                      (b) Use a magnet                      (c) Use a sieve                      (d) Use tweezers
33. Which of the following is a homogeneous mixtures?  
 (a) Salad    (b) Oil and water  
 (c) Sand and iron fillings    (d) Salt dissolved in water

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34. Atomic number of element X is 16, its stable ion is  
 (a)  $X^{2-}$  (b)  $X^{2+}$  (c)  $X^{-}$  (d)  $X^{+}$
35. When a metal reacts with an acid, which gas is usually produced?  
 (a) Oxygen (b) Hydrogen (c) Carbon dioxide (d) Nitrogen
36. Cell boundary in animal cell is  
 (a) Cell membrane (b) Cell wall (c) Both a and b (d) None of these
37. Fluid connective tissue in humans is  
 (a) Blood and cartilage (b) Lymph and plasma  
 (c) Blood and lymph (c) Stroma and matrix
38. Smooth muscles cells are  
 (a) Uninucleate (b) Multinucleate (c) Enucleate (d) Both a & b
39. Collenchyma : Simple : : Phloem : \_\_\_\_\_ .  
 (a) Simple (b) Parenchyma (c) Complex (d) Xylem
40. Organelle which contains instructions for cell function.  
 (a) Mitochondria (b) Nucleus (c) Chloroplast (d) Vacuole
41. A junction between axon of one neuron and the dendrite of the next is called  
 (a) synapse (b) joint (c) bridge (d) junction
42. Which tissue give support and structure to the body?  
 (a) Epithelial tissue (b) Connective tissue (c) Muscular tissue (d) Nervous tissue
43. Plants obtain  $CO_2$  from air through  
 (a) Stomata in leaf (b) Xylem in root (c) Leaf vein (d) Stem surface
44. Which type of nutrition do lichens exhibit?  
 (a) Symbiotic (b) Saprophytic (c) Autotrophic (d) Heterotrophic
45. Which one of the following plants is a parasite?  
 (a) Mushroom (b) Mimosa (c) Cuscuta (d) Venus flytrap

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