






Section : I - Aptitude and Logical Reasoning

- In a family of six persons A, B, C, D, E & F
There are two married couples.
D is grandmother of A and mother of B.
C is wife of B and mother of F.
F is the granddaughter of E.
Who among the following is one of the couples?
(a) EB (b) CD (c) DE (d) EC
- Morris is facing north and walks 10 kms. He turns 270° anti clockwise and walks 15 kms. Now, he again turns 45° clockwise and walks for 25 kms. Which direction is he facing now ?
(a) North- East (b) South- East (c) South (d) North
- ODD MAN OUT
22, 33, 66, 99, 121, 279, 594
(a) 279 (b) 99 (c) 121 (d) 22
- If LIFE is coded as FELI, how is MORE coded as
(a) MERO (b) EROM (c) REMO (d) OREM
- 

What figure logically completes the series?

- (a) 
- (b) 
- (c) 
- (d) 

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Section : II -Mathematics

6. What is the value of $\frac{0.96 \times 0.96 \times 0.96 + 0.04 \times 0.04 \times 0.04}{0.96 \times 0.96 - 0.96 \times 0.04 + 0.04 \times 0.04}$?
 (a) 0 (b) 2 (c) 1 (d) Not defined
7. Find one of the factors of $(x-1)-(x^2-1)$.
 (a) x^2-1 (b) $x+1$ (c) $x-1$ (d) $x+4$
8. If $4a^2 + 9b^2 + c^2 = 100$, and $3ab + ac + \frac{3}{2}bc = 11$, then what is the value of $2a + 3b + c$?
 (a) 10 (b) 11 (c) 12 (d) 13
9. If $x^2 + \frac{1}{x^2} = 79$, what is the value of $x + \frac{1}{x}$?
 (a) 7 (b) 9 (c) $\sqrt{79}$ (d) 81
10. $(2^{-1} \times 4^{-1}) \div 2^{-2}$
 (a) $\frac{1}{8}$ (b) $\frac{1}{2}$ (c) 2 (d) 1
11. Simplify the following expression: $\frac{36 \times x^{-3}}{6^{-2} \times 12 \times x^{-5}}$
 (a) $108x^2$ (b) $\frac{3}{36x^2}$ (c) $\frac{72}{x^2}$ (d) $3x^2$
12. Express the number $\frac{1}{80000000}$ in standard form.
 (a) $\frac{1}{8 \times 10^8}$ (b) $\frac{8}{10^8}$ (c) 1.25×10^{-7} (d) 1.25×10^{-8}
13. The HCF of two numbers is 6 and the product of the two numbers is 4320. How many pairs of numbers exists, which satisfies the above conditions?
 (a) 2 (b) 3 (c) 4 (d) 5

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14. The highest common factor of $\frac{4}{3}, \frac{64}{9}, \frac{8}{81}, \frac{32}{27}$
 (a) $\frac{4}{81}$ (b) $\frac{64}{3}$ (c) $\frac{160}{3}$ (d) $\frac{160}{81}$
15. A number leaves a remainder of 3 when divided by 4, 5, 6, 8, 10, 20 and 40. What is the smallest three-digit number that satisfies this condition?
 (a) 107 (b) 188 (c) 103 (d) 123

Section : III - Science

16. The length and breadth of a rectangular sheet are measured as 25.2 cm and 16.8 cm. Find its area with the correct number of significant figures.
 (a) 423.36 cm² (b) 423 cm² (c) 420 cm² (d) 424 cm²
17. A measuring cylinder contains 40 mL of water. A stone is completely dipped into it, and the level rises to 54 mL. If the mass of the stone is 28 g, find its density.
 (a) 1 g/cm³ (b) 1.5 g/cm³ (c) 2 g/cm³ (d) 2.5 g/cm³
18. A pendulum clock loses 12 seconds in 3 hours. How much time will it lose in 1 day?
 (a) 48 seconds (b) 72 seconds (c) 96 seconds (d) 120 seconds
19. A block of mass 5 kg is kept on a horizontal table. If $g = 10 \text{ m/s}^2$, find the force with which the block presses on the table.
 (a) 25 N (b) 50 N (c) 100 N (d) 5 N
20. A girl applies a force of 200 N on a box of area 0.4 m². Find the pressure exerted.
 (a) 200 N/m² (b) 400 N/m² (c) 500 N/m² (d) 800 N/m²
21. 2 Nm is equal to
 (a) 2×10^8 dyne cm (b) 2×10^7 dyne cm (c) 2×10 dyne cm (d) 2×1080 dyne cm
22. A boy of weight 400N stands on a floor wearing shoes with a total sole area of 200 cm². Calculate the pressure exerted on the floor.
 (a) 2 N/m² (b) 200 N/m² (c) 80000 N/m² (d) 20000 N/m²

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23. A boy claps near a tall building and hears the echo after 2 s. If the speed of sound is 340 m/s, find the distance of the building.
 (a) 170 m (b) 340 m (c) 510 m (d) 680 m
24. The frequency of a sound wave is 256 Hz and its speed in air is 340 m/s. Calculate its wavelength.
 (a) 0.67 m (b) 1.00 m (c) 1.33 m (d) 1.50 m
25. A tuning fork produces waves in air of wavelength 1.3 m. If the speed of sound is 338 m/s, calculate the frequency. Another tuning fork produces a frequency 5% higher. Find the beat frequency when both are sounded together.
 (a) 10 Hz (b) 12 Hz (c) 13 Hz (d) 15 Hz
26. _____ is known as artificial silk.
 (a) Rayon (b) Nylon (c) Polyester (d) None
27. Choose a biodegradable substance.
 (a) Thermoplastic (b) thermosetting plastic
 (c) PVC pipes (d) none
28. Atomicity of phosphorous
 (a) 3 (b) 4 (c) 6 (d) 8
29. Rutherford's α -particle scattering experiment of gold foil is responsible for the discovery of
 (a) neutron (b) electron (c) proton (d) atomic nucleus
30. α - particles are doubly charged ions of
 (a) lithium (b) beryllium (c) helium (d) hydrogen
31. Which of the following is a mixture?
 (a) Air (b) Iron (c) Sulphur (d) Water
32. A mixture of ammonium chloride can be separated by
 (a) filtration (b) distillation (c) sublimation (d) crystallization
33. Number of electrons in M shell of P:
 (a) 3 (b) 4 (c) 10 (d) 5
34. Which of the following is synthetic fibre?
 (a) Jute (b) Nylon (c) Wool (d) None

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35. Electronic configuration of Ar.
(a) 2, 8, 3 (b) 2, 8, 8 (c) 2, 2, 8 (d) 2, 9, 8
36. Cell organelle which has double membrane
(a) Mitochondria (b) Ribosome (c) Lysosome (d) Golgi bodies
37. preservation of milk is done by _____.
(a) Dehydration (b) Pasteurisation
(c) Adding preservatives (d) None of these
38. Cell organelle required for destroying foreign particle
(a) Glyoxysome (b) Lysosomes (c) Ribosome (d) Both (b) and (c)
39. Dengue is spread by
(a) Aedes mosquito (b) Anopheles mosquito
(c) Contaminated food and water (d) None of these
40. Organelle present in animal cell helps in the formation of cilia and flagella.
(a) Endoplasmic reticulum (b) Ribosome
(c) Centriole (d) Mitochondria
41. Which of the following is not a communicable disease?
(a) Common cold (b) Chicken pox (c) Tuberculosis (d) Cancer
42. Living cell was discovered by _____.
(a) Robert Hooke (b) Robert brown
(c) Anton van Leeuwenhoek (d) Camillio Golgi
43. Fermentation is the process used for making _____.
(a) Curd (b) Dals (c) Rice (d) both b and c
44. _____ gives shape and support to plant cell.
(a) Cell membrane (b) Cell wall (c) Goldi body (d) Capsule
45. Who explained that new cells are formed from pre-existing cells?
(a) Theodore Schwann (b) Schleiden and Schwann
(c) Robert Hooke (d) Rudolf Virchow

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