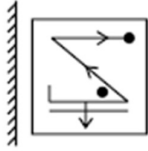


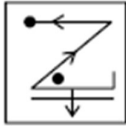
Section : 1 - Aptitude and Logical Reasoning

1. Select a figure from the options which is the mirror image of the Problem Figure.

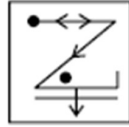


Problem Figure

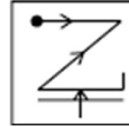
(a)



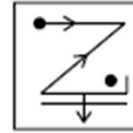
(b)



(c)



(d)



2. If in a certain code '56431' is written as 'RSHTU' and '98270' as 'MLKPA', then how will '9517' be written in the same code?

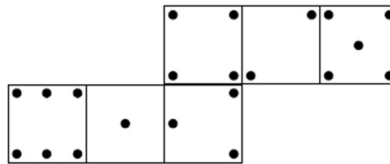
(a) MURP

(b) MRUP

(c) MRPU

(d) MRPT

3. How many dots lie opposite to the face having three dots, when the given figure is folded to form a cube?



(a) 2

(b) 4

(c) 5

(d) 6

4. In a certain code language 'in pe ba' means 'he is late', 'le ba se' means 'she is early' and 'pa ta in' means 'he leaves soon'. Which word in that language means late ?

(a) pe

(b) in

(c) ba

(d) Data is inadequate

5. If '×' means 'is father of', '+' means 'is sister of', '-' means 'is brother of', and '÷' means 'is mother of', then which of the following statements means 'S is grand-daughter of P'?

(a) $P \times T + R \div S$

(b) $P \div Q - R \div S - T$

(c) $P \times R - T \times S$

(d) $P \div Q - R \times S + T$

ROUGH SPACE

Section : 2 - Mathematics

6. If $4^x + 4^x + 4^x + 4^x + 4^x + 4^x + 4^x + 4^x = \frac{1}{512}$, then what is the value of $\frac{-3}{x}$?
 (a) 0.50 (b) 0.75 (c) -0.72 (d) -4.25
7. A school has 8 tables of dimensions 1 m by 1 m, 26 tables of dimensions x m by 1 m and 15 tables of dimensions x m by x m. All the tables are of equal height.
 Based on this information answer the question given below:
 If the tables are placed together to form a large rectangular table, then the dimension of the table formed is _____.
 (a) $(3x + 4)(5x + 2)$ (b) $(3x - 4)(5x - 4)$ (c) $(5x - 4)(4x - 4)$ (d) $(5x - 4)(5x + 4)$
8. Select the INCORRECT match with respect to the representation of numbers on the number line.
- | | |
|----------------------|--|
| (a) Natural numbers | The line extends indefinitely only to the right side of 1. |
| (b) Whole numbers | The line extends indefinitely to the right, but from 0. There are no numbers to the left of 0. |
| (c) Integers | The line extends indefinitely on both sides and you can see numbers between -1, 0; 0, 1, etc. |
| (d) Rational numbers | The line extends indefinitely on both sides and you can see numbers between -1, 0; 0, 1, etc. |
9. If $3^{x+y} = 81$ and $81^{x-y} = 3^8$, then find the values of x and y respectively.
 (a) 3, 1 (b) 1, 3 (c) -1, 3 (d) -1, -3
10. Simplify:

$$\left(\frac{a}{2} + \frac{b}{8} - \frac{c}{5}\right)\left(\frac{a^5}{4} + \frac{b^2}{64} + \frac{c^2}{25} - \frac{ab}{16} + \frac{bc}{40} + \frac{ca}{10}\right)$$
- | | |
|---|---|
| (a) $\frac{a^3}{8} + \frac{b^3}{512} - \frac{c^3}{125} + \frac{3abc}{80}$ | (b) $\frac{a^3}{8} + \frac{b^3}{512} + \frac{c^3}{125} + \frac{3abc}{80}$ |
| (c) $\frac{a^3}{8} - \frac{b^3}{512} + c^3 - \frac{3abc}{80}$ | (d) $a^3 + b^3 + c^3 - 3abc$ |

ROUGH SPACE

11. Factorize $x^3p^2 - 8y^3p^2 - 4x^3q^2 + 32y^3q^2$
 (a) $(p+2q)(p-2q)(x^2 - 2xy + 4y^2)$ (b) $(p-2q)(x^2 + 2xy + 4y^2)(x-2y)$
 (c) $(p+2q)(p-2q)(x-2)(x^2 + 2xy + 4y^2)$ (d) $(p+2q)(x^2 + 2xy + 4y^2)$
12. If $x^4 + \frac{1}{x^4} = 194$, find the value of $x^3 + \frac{1}{x^3}$.
 (a) 64 (b) 52 (c) 40 (d) 38
13. Study the two statements carefully and choose the correct answer.
Statement 1 : Solution of $\left(\frac{64}{125}\right)^{-\frac{2}{3}} \div \frac{1}{(256/625)^{\frac{1}{4}}} + \left(\frac{\sqrt{25}}{\sqrt[3]{64}}\right)^0$ is $\frac{3}{2}$
Statement 2 : Law of Indices is $\frac{1}{a^n} = a^{-n}$, $a^{\frac{1}{n}} = \sqrt[n]{a}$, $\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$ and $a^0 = 1$
 (a) Both the statements are true (b) Statement 1 is false and statement 2 is true
 (c) Both the statements are false (d) Statement 1 is true and statement 1 is false

Section : 3 - Science

14. $1 \frac{\text{g}}{\text{cm}^3} = 'x' \frac{\text{kg}}{\text{m}^3}$ Find the value of 'x'.
 (a) 10 (b) 100 (c) 1000 (d) 10000
15. The dimension of acceleration are
 (a) 0, 1, -2 (b) 0, -1, 2 (c) 1, 0, -2 (d) 0, -1, -2
16. The unit of measuring pressure is
 (a) newton (b) newton/meter² (c) meter² (d) meter²/newton
17. Gravity is
 (a) repulsive (b) attraction + repulsive force
 (c) attractive force (d) not a force

ROUGH SPACE

18. A boat or an aeroplane has a pointed or tapering front/head why?
 (a) to increase the friction of fluids (b) to reduce the friction of fluids
 (c) to look good (d) for no reason
19. The distance between a crest and next trough in a periodic wave is
 (a) λ (b) $\frac{\lambda}{2}$ (c) $\frac{\lambda}{4}$ (d) 2λ
20. A boat anchor is rocked by waves whose crests are 100 m apart and whose velocity is 25 m/s. The waves strike the boat once every:
 (a) 2500 s (b) 0.25 s (c) 1500 s (d) 4 s
21. Silicon is a
 (a) Metalloid (b) Metal (c) Non-metal (d) Inert gas
22. The gas which is highly soluble in water is
 (a) Ammonia (b) Nitrogen (c) Carbon monoxide (d) Oxygen
23. Full form of PVC?
 (a) Polyvinyl chloride (b) Polyvinyl bromide
 (c) Polyvinyl iodide (d) None of these
24. One of the following manmade fibre is not prepared from raw material obtained from petrochemicals. The one is
 (a) Polyester (b) Nylon (c) Rayon (d) Acrylic
25. Electron present in outermost shell are called
 (a) Electrons (b) Valence electrons (c) Atomic number (d) Mass number
26. Nucleons are
 (a) Protons only (b) Neutrons only
 (c) Protons and neutrons (d) Protons and electrons
27. Electrons revolve around the nucleus in fixed orbits or shells called energy levels, these energy level are
 (a) K, L, M, N (b) s, p, d, f (c) both a and b (d) None of these

ROUGH SPACE

28. Which is true about asexual reproduction?
 (a) Insects are needed to transfer pollen.
 (b) New plants grow from seeds.
 (c) Offspring are genetically identical to their parent.
 (d) Two types of gametes are involved.
29. Many wind-pollinated flowers have _____.
 (a) feathery stigmas and light pollen. (b) feathery stigmas and sticky pollen.
 (c) short stigmas and light pollen. (d) short stigmas and sticky pollen.
30. Which statement is not true of the offspring resulting from asexual reproduction?
 (a) They are produced by self-fertilisation.
 (b) They are produced from a single parent.
 (c) Their cells have the same alleles.
 (d) Their cells have the same number of chromosomes.
31. An investigation was carried out on a plant species. Plant 1 – Anthers removed; buds left open to the air. Plant 2 – Anthers untouched; paper bag tied tightly around each bud. Plant 3 – Anthers removed and paper bag tied tightly around each bud. Although all flowers later opened normally, only those on plant 1 produced seeds. This results shows that:
 (a) only cross-pollination can take place.
 (b) only wind-pollination can take place.
 (c) only insect-pollination can take place.
 (d) both self-and cross-pollination can take place
32. The male reproductive structure of a flower is the _____.
 (a) pistil (b) ovary (c) stamen (d) ovule
33. The enlarged base of the pistil that stores the eggs of the plant is the _____.
 (a) ovary (b) ovule (c) stigma (d) style
34. Small grains that contain a plant's male reproductive cells.
 (a) stamen (b) pollen (c) anther (d) stigma
35. Brightly colored parts of flowers that attract insects.
 (a) petals (b) pistils (c) stamen (d) filaments

ROUGH SPACE
