



Four alternatives are given for each of the following questions / incomplete statements. Only one of them is correct or most appropriate. Choose the correct alternative and write the complete answer along with its letter of alphabet.

10 × 1 = 10

1. The sulphide ore among the following is
  - (A) Bauxite
  - (B) Chalcopyrite
  - (C) Azurite
  - (D) Malachite.
  
2. A source of sound moves towards a stationary observer and crosses the observer and moves forward. The observer in this situation feels as if the pitch of the sound is
  - (A) increasing
  - (B) decreasing
  - (C) initially decreasing and increasing later
  - (D) initially increasing and decreasing later.
  
3. The group that contains only non-biodegradable pollutants is
  - (a) wood, paper, leather
  - (b) lead, bakelite, DDT
  - (c) plastic, detergents, grass
  - (d) polythene, bakelite, PVC.
  - (A) (b) only
  - (B) (a) and (c)
  - (C) (d) only
  - (D) (b) and (d).

4. An application of Charles law in the following is
- (A) feeling of pain in ears of passengers while aeroplane is ascending suddenly
  - (B) smell of hot food reaches us faster than cold food
  - (C) balloon pops out more frequently in summer than in winter
  - (D) balloon pops out when squeezed over the limit.
5. A person shows the symptoms such as ulcers on the nose and lower leg, gradual blindness and dementia. The disease having these symptoms and the microbe causing this disease is
- (A) Syphilis — Treponema Pallidum
  - (B) Gonnorrhoea — Neisseria Gonorrhoeae
  - (C) Genital warts — Human Papilloma virus
  - (D) Genital herpes — Herpes Simplex virus.
6. In a transformer the product of current and voltage of primary coil is 440 W. If the secondary voltage is 220 V, then the current in the secondary coil is
- (A) 20 A
  - (B) 2 A
  - (C) 4 A
  - (D) 2·2 A.
7. The four steps of manufacturing common sugar are given in wrong order.
- (a) Concentration and crystallization of juice.
  - (b) Purification of juice.
  - (c) Separation and drying of crystals.
  - (d) Extraction of juice from the source.

The correct arrangement of these steps is

- (A) b, d, c, a
- (B) d, a, b, c
- (C) a, c, d, b
- (D) d, b, a, c.

8. The correct statement with reference to wind energy and wave energy in the following is
- (A) Wind energy is more reliable than wave energy
  - (B) The cost per unit for the conversion of wind energy into electrical energy is very high.
  - (C) Fluctuation in the energy availability is lesser in wave energy than in wind energy
  - (D) Wind energy turbines use specialised instruments when compared to wave energy converters.
9. In a copper voltameter, the mass of copper deposited at the cathode when 3 A of current is passed for 20 minutes is [ ECE of copper is 0.0003 g/coulomb ]
- (A) 18 g
  - (B) 1.8 g
  - (C) 1.08 g
  - (D) 10.8 g.
10. The features of oesophagus muscles are
- (A) Striped, cylindrical shape, voluntary
  - (B) Unstriped, spindle shape, involuntary
  - (C) Striped, cylindrical shape, involuntary
  - (D) Unstriped, spindle shape, voluntary.

11. The parts of a vehicle/engine are given in **Column-A** and their related aspects are given in **Column-B**. Match them and write the answer along with its letters :

4 × 1 = 4

**Column - A**

- (A) Carburettor  
(B) Crank shaft  
(C) Spark plug  
(D) Outlet valve

**Column - B**

- (i) Remains closed in intake stroke and remains open in exhaust stroke  
(ii) Petrol and air are mixed here  
(iii) Mixture of petrol and air is compressed here  
(iv) Injects controlled quantity of fuel in the form of micelles into the engine  
(v) Helps in igniting the petrol and air mixture  
(vi) Remains open in intake stroke and remains closed in exhaust stroke  
(vii) Converts linear motion into circular motion.

**Answer the following questions.**

7 × 1 = 7

12. State Boyle's law.  
13. Mention any two characteristics of Jatropha plant whose seeds are used for transesterification.  
14. Write any two functions of feathers in birds.  
15. Choose the elements in the following that belong to the same period in modern periodic table :

Element	Hydrogen	Sodium	Carbon	Silicon
Atomic No.	1	11	6	14

16. Name the device for obtaining high DC voltage from a low DC voltage source.
17. State the Mendel's law of segregation.
18. When a person is very angry, the rate of heart-beat and breathing increases.  
Name the part of autonomic nervous system that brings these changes into normal condition.