

ANSWERS

1. (c) Turning of red litmus blue suggests that the solution of burning product of *X* is alkaline, i.e. it is a basic oxide and oxides of metals are basic. Thus, *X* is a metal.

Further, burning of *Y* produces a gas solution of which reacts with *l*, so *Y* should be a non-metal.

2. (c)

3. (c) Endemic species are those species (of plants and animals) that are exclusively found in a particular area. A number of factors endanger their existence.

These include destruction of forests (i.e. their habitat), introduction of new species and increasing human population.

4. (b) Disposable tablewares must possess high melting point and moderate strength whereas in case of moving plastic component, the strength must be very high.

5. (b) For storing chemicals, the container must be resistant towards chemicals whereas only for measuring volume, it must be transparent.

6. (a) Clothing fabrics should not be transparent and must be cheap but, fabric for carrier bags should be opaque.

7. (d) Condensation of water vapours in the form of water when comes in contact of a cold surface suggests that water vapour is a product of combustion process.

8. (d) All the properties of friction mentioned are in use.

9. (b) Lightning conductor is associated with electric discharge. Moving charges cause electric current. Movement in earth's plate causes earthquake. Seismic zones are the weak zones which are more prone to earthquake.

10. (d) Mercury is a liquid metal. Carbon dioxide because of its acidic nature, turns blue litmus red, whereas magnesium oxide being basic shows a reverse change. Gold is a metal, so it is malleable (i.e. can be beaten into sheets).

11. (c) Statement D can be written in correct form as: Cells arise from pre-existing cells.

12. (b) Knitted wool or wool absorbs more water as compared to nylon and cotton.

13. (d) Brakes convert the kinetic energy of a moving vehicle into heat energy. This kinetic energy is attained by the virtue of friction.

14. (a) Cocci bacterium is multiplying at fastest in comparison to other organism on the bacteria.

This can be easily observed by the increased number of cocci cells.

15. (c) When burnt in air, magnesium combines with oxygen and nitrogen of air to give magnesium oxide and magnesium nitride respectively.

16. (a) The water in pond P is not polluted thus, water plants can survive best in it but we don't know about the water quality of Q (it is not discussed in any inference). If pond S is most polluted, then R can never be inferred as more polluted than S.

17. (d) LPG is Liquefied Petroleum Gas while CNG is Compressed Natural Gas, main constituent of which is methane.

Coal gas is produced when coal is processed to coke. Plastics are petroleum products.

18. (b) Only non-conducting materials can be charged by friction. Copper being highly conducting cannot be charged by friction.

19. (c) Mitochondria does not contain any kind of colouring pigments.

In plants, the plastids of different types contain various colouring pigments.

20. (a) R is the correct explanation of A.

21. (a) Most freshwater lakes, streams and ponds have a natural pH in the range 6 to 8. Acid deposition has many adverse ecological effects on aquatic life.

The main pollutants responsible for acid deposition or acid rain are sulphur dioxide and nitrogen oxides. Water pollution can cause deadly effects on the life of the aquatic organisms like decrease in BOD, COD, that cause eutrophication.

22. (b) Ignition temperature of alcohol is very low, so it is highly inflammable and catches fire readily when comes in contact of flame.

23. (d) Cell wall may be present both in prokaryotic and eukaryotic (plant cell). In prokaryotes, cell wall is made up of peptidoglycan (murein), whereas eukaryotic cell wall is made up of cellulose.

Prokaryotes also lack a true nucleus. Their genetic material is not enclosed by any envelope but lies freely in cytoplasm. Eukaryotes possess true nucleus, i.e. a spherical nucleus bound by double membraned nuclear envelope.

24. (a) CO₂ is stored at high pressure and low temperature.

25. (c) *X* = Semi-synthetic

Y = Synthetic

A = Animal fibre

B = Plant fibre

C = Thermoplastics

D = Thermosetting

26. (c) Increased concentration of CO₂ leads to global warming. Acid rain is the result of increased concentration of oxides of nitrogen and sulphur.

27. (d) Pinocytosis is a type of endocytosis in which membranes invaginate or pinch in, to form a vesicle, moving the enclosed material inside the cell. It is also known as cell drinking.

28. (d) According to Newton's first law of motion, an object will remain at rest or in uniform motion until and unless it is acted upon by an external force.

29. (d) When the planet travels from P7 to P8, it covers a larger distance as compared to other points. So, for the same time interval speed of the planet is greatest as it travels from P7 to P8.

30. (b) The nitrogen fixers in the crossword are *Anabaena*, *Nostoc*, *Clostridium*, *Azotobacter* and *Spirillum*.