

24.4 BIOLOGY (231)



MANYAM FRANCHISE
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24.4.1 Biology Paper 1 (231/1)

1. (a) A Scientific system of naming organisms using the generic and specific species names. **(1 mark)**
(b)
 - Placing/grouping of living organisms into correct groups/ taxa; identification.
 - Arrange information about living organisms into orderly and sequential manner.
 - Easy to study organisms according to groups.
 - Helps in the understanding of evolutionary relationships.
 - Monitoring the disappearance and appearance of organisms/ predict the characteristics of organisms. **(2 marks)**
2. (a) Magnification = $\frac{\text{Length of drawn object / specimen}}{\text{Length of the actual object / specimen}}$ **(1 mark)**
(b) To make parts of specimens distinct /clear. **(1 mark)**
3. Presence of cell wall; which is rigid/ doesn't stretch/ is tough. **(2 marks)**
4.
 - Secretion of substances/ hormones/ enzymes /glycoproteins /polysaccharides / synthesized proteins/ carbohydrates.
 - Packaging of carbohydrates and proteins.
 - Modification of carbohydrates and proteins/ formation of glycoprotein.
 - Transport of carbohydrates/ proteins/ glycoproteins /lipids.
 - Production of lysosomes. **(3 marks)**
5. **Diffusion:** Movement of substances from a region of high concentration to a region of low concentration (until equilibrium is reached). **(1 mark)**
Osmosis:- Movement of water or solvent molecules from a dilute / hypotonic solution to a more concentrated/ hypertonic solution across a semi-permeable membrane; **(1 mark)**
6. Light (energy) is absorbed by chlorophyll; photolysis the light splits water molecule; to form Hydrogen atom/ions and Oxygen gas. Light is converted to form Adenosine Triphosphate (ATP). **(3 marks)**
7. (a) (i) Premolar/ molar.
(ii) Has two (2) roots/broad working surface/cups/ridges. **(2 marks)**
(b)
 - Blood vessels/capillaries which supply oxygen/nutrients/move carbon dioxide/waste products.
 - Nerve endings for sensitivity. **(2 marks)**
8. (a) Vitamin D/ Calciferol; **(1 mark)**
(b)
 - Nerve impulse conduction.
 - Muscle contraction.
 - Helps maintain osmotic/anion – cation balance in cells.
 - Assists in active transport; needed in protein synthesis; in respiration. **(2 marks)**
9.
 - The root hairs are long/ narrow/ numerous to increase the surface area for absorption of water/ mineral salts.

- Many mitochondria (in cytoplasm) to supply energy for active transport of mineral salts/ thin walls to speed rate of absorption of water/mineral salts. (2 marks)
10. (a) Phloem. (1 marks)
- (b) K - Phloem/ parenchyma cell. (1 marks)
- L - Sieve tube element/sieve tube (cell). (2 marks)
- (c)
 - Supply of nutrients to sieve tube element for translocation.
 - Regulates the activities of the sieve tube cell / sieve element. (1 mark)
11. (a) Valves (1 mark)
- (b)
 - Biconcave shaped to provide a large surface area for absorption of Oxygen/Co₂.
 - Absence of nucleus hence more haemoglobin to carry sufficient Oxygen/Co₂. (2 marks)
12. (a) Stomata; pneumatophores. (2 marks)
- (b) Diaphragm flattens; increasing volume of chest cavity; while pressure decreases. (3 marks)
13. (a) (i) (Ethanol/ Ethyl alcohol) Carbon (IV) oxide, Energy (210KJ). (1 mark)
- (ii) Lactic Acid, Energy. (1 mark)
14. (a) (i) **Homeostasis:** maintenance of a constant internal environment. (1 mark)
- (ii) **Osmoregulation:** mechanisms which regulate osmotic pressure of internal environment of an organism/regulation of water and solutes/salt balance of the internal environment of an organism in the body. (1 mark)
- (b) Insulin. (2 marks)
- Glucagon.
15. (a) **Population:** the number of organisms of a species occupying a given habitat. (1 mark)
- Community:** Population of different species of plant and animals organisms/in a given area/habitat/co-exist/living/interacting with each other. (1 mark)
- (b) (i) Capture – recapture/total count. (1 mark)
- (ii) Line transect/ Belt transect/ quadrant. (1 mark)
16.
 - The eggs have a hook-like structure which raptures walls of intestines or bladder.
 - It lays large number of eggs to ensure survival.
 - The larva has a sucker for attachment on human skin which it digests.
 - Larva has a tail for swimming on each of a host in water.
 - It has a prolonged association between male and female to ensure that fertilization takes place.
 - Adult tolerates low (O₂).
 - Adult secretes chemicals against antibodies of host.
 - Larva encysted to survive adverse conditions.
 - Larva/egg secretes high enzymes which softens tissue for ease of penetration. (2 marks)
17. (a) (i) Anaphase I. (1 mark)
- (ii)
 - Centromere of bivalent pair not split.

- Homologous chromosomes separate; are moving towards poles of the cell. **(2 marks)**
 - (b) Spindle fibre(s). **(1 mark)**
- 18.
- Offspring can inherit undesirable characteristics from parents.
 - Sexual reproduction takes a long time.
 - Fewer offspring are produced.
 - Involves two different sexes (which must mate). **(2 marks)**
- 19.
- (a) Low temperature; light (O₂); water/ water moisture. **(2 marks)**
- (b) Hypocotyl. **(1 mark)**
- 20.
- (a) Allele refers to alternative form of a gene; one of two or more alternative states of a gene of two or more states of a gene. **(1 mark)**
- (b)
- (i) **Deletion:** Some bases nucleotides of a gene reversed. **(1 mark)**
- (ii) **Inversion:** The order of some bases nucleotides of a gene reversed **(1 mark)**
- (c) A cross made between a homozygous recessive parent and a parent of unknown genotype (to determine whether the unknown type is homozygous or heterozygous for a dominant gene). **(1 mark)**
- 21.
- (a) A situation where organisms have a homologous structure; which is modified to perform different functions; so as to grow to different ecological niches/habitat. **(1 mark)**
- (b) The organisms mutate. **(1 mark)**
- 22.
- (a) Brain/Spinal cords/Central nervous system. **(1 mark)**
- (b)
- (i) Motor. **(1 mark)**
- (ii) **P:** Dendrites. **(2 marks)**
- Q:** Axon / Axoplasm.
- 23.
- (a) Indole Acetic Acid. **(1 mark)**
- (b) Growth response of part of a plant when in contact with an object. **(1 mark)**
- 24.
- (a) Vertebrarterial canal. **(1 mark)**
- (b)
- Collenchyma.
 - Sclerenchyma.
 - Xyllem/trancheid and vessels. **(2 marks)**
- 25.
- (a) Acidic medium due to presence of hydrochloric acid. **(1 mark)**
- (b) High temperature, extreme (changes) pH. **(1 mark)**
- (c) Increased presence of villi; coiled. **(2 marks)**
- 26.
- Time of birth.
 - Breast feeding. **(1 mark)**

24.4.2 Biology Paper 2 (231/2)

1. (a) **K** - Pleural membrane(s).
- L** - Alveolus/Alveoli.