**231/1**

 **BIOLOGY**

**PAPER 1**

**MARKING SCHEME**

1. (a) (i) Entomology

 (ii) Sap vacuole - store sugars (in plants)

 (b) Manufacture ribosomes.

2. Arachnida;

 Crustacea;

3. i) mitosi

 ii) Homologous chromosomes migrate to opposite poles

 iii) K Spindle fibres

4. (a) Carbon (IV) oxide, hydrogen ions / atoms

 (b) Oxygen gas

 (c) dissociate in water to provide carbon (IV) oxide; which is necessary for photosynthesis;

5. Have sytoplasmic filaments to enhance mass flow; sleeve plate has pores for passage of organic material;

 Have companion cell which provide energy; presence of plasmodesmata to communicate between sieve tube elements and companion cells.

6. i) the role **of progesterone production** is taken over **by the placenta**

ii) Manufacture and storage of sperm cells

 Secretion of androgens/ hormones/ testesterone

7. Thrombin;

 Thromboplastin / thrombokinase;

 Calcium ions;

8. (a) *salmonella typhi*

 (b) plasmodium spp, plasmodium vivax, plasmodium falciparum, plasmodium ovale, plasmodium malariae

9. Sensitive to change in temperature; pH;

 Has electrical changes, positive and negative changes;

 Selectively permeable;

10. (a) Maximum number of organisms which can be supported by a habitat without depleting the available resources.

 (b) Both consumers and producers are at equilibrium;

 Number of organisms in the trophic levels can support one another in terms of nutrition.

11. (a) Volume increases, pressure decreases; rises upwards and (slightly) outwards;

 (b) Flattens

 (c) Contracts

 (d) Relaxes

12. a) i)

13. (a) Tuft of hair in the nose and ear pinna; premature baldness;

 Colourblindnes ; Haemophilia

 (b) (i) Inversion.

 (ii) Insertion

14. (a) Pericarp/fruit wall

 (b) (i) Animals

 (ii) It has hooks that get attached on the animals bodies and get moved away from the mother to plant.

15. (a) Seminal vesicle.

 (b) Urine; semen; rej. Sperms

16.

17. Arteries have narrow lumen to maintain pressure;

 Have muscular walls;

 Blood pumped at high pressure;

18. Carbon(IV)oxide increases in the guard cell; pH increases leading to conversion of glucose to starch; starch is osmotically inactive compared to glucose; this leads to guard cells loosing water to the surrounding epidermal cells; guard cells becomes flaccid and hene stoma closes.

19. The leaf had stomata on the lower side only ; which were blocked by petroleum jelly; cutting supply of Co2, hence no photosynthesis.

20. (a) stores food for the embryo

 (b) Protects the inner parts from injury / micro-organisms / desiccation.

21. (a) There is no variation in characteristics;

 No hybrid vigour;

 Undesirable characteristics are retained within the species;

 (b) To allow the male nuclei to enter the embryo sac.

22. (a) Open / Lacuna

 (b) (i) Hepatic portal vein

 (ii) Pulmonary vein

23.

24 (a) Solution S is hypotonic to cell sap of potato cylinder cells; the cells drew in water by osmosis increased in size and

 became turgid hence increase in length and stiffness in cylinder.

 Solution T was hypertonic to cells of potato cylinder; the cells lost water by osmosis to solution

 T and became flaccid leading to decrease in length and becoming flexible.

 (b) Active transport refers to movement of molecules or ions (across a semi-permeable membrane) against the concentration

 gradient with use of energy, diffusion is the movement of molecules or ions from region of high concentration to region

 of low concentration.

25. Produces hormones / endocrine organs / produce digestive pancreatic juice.

26. Trypsin

 Pepsin

27. Promotes cell division and cell elongation in dwarf plants thus greatly increasing their length; ends dormancy in lateral buds thus promoting formation of side branches; affects expansion and shape of the leaf and retards leaf abscission.