**BIOLOGY MARKING SCHEME**

**PAPER 1**

**JULY/AUGUST 2015**

 **FORM III**

1.

* Identify similarities and differences between organisms;**(2mrks**)
* Organize scientific information in an orderly manner ;
* Monitor emergence and disappearance of organisms;
* For easy study;
* Trace the evolutionary relationship among living organisms

2. (a) Tosupply nutrients and oxygen to the heart tissues and removal of metabolic wastes;**(1mrk)**

(b) To prevent the valve flaps from turning inside out when under low pressure; **(1mrk)**

3.

 (a) To allow light to pass through.**(1mrk)**

(b) To obtain smooth slices hence prevent distortion of the cell structures;**(1mrk)**

(c) To make the parts more visible /to differentiate parts of the cell; (**1mrk)**

4. (a) synthesis of protein;/ site for protein synthesis; **(1mrk**)

 (b) Provides mechanical support and protection/prevent plant cell from bursting ; **(1mrk**)

5. (a) in the granum; **(1mrk)**

 (b) Provide energy to split the water molecules into hydrogen atoms and oxygen molecules;(**1mrk)**

6. It readily combines with hemoglobin to form carboxyhaemoglobin;carboxyhaemoglobin is a stablecompound/does not dissociate; hence reduce the capacity of the red blood cells to transport oxygen; **(3mrks)**

7. Small individuals have large surface area to volume ratio ; hence lose more heat energy ;this makes them to eat more / to gain more energy to compensate the energy lost; **(3mrks)**

8. (a) allows for the passage of blood vessels and nerve fibers; **(1mrk)**

 (b) It is hard hence protects the inner parts of the tooth from injury;(**1mrk)**

9. Trypsinogen and pepsinogen are inactive forms of trypsin pepsin respectively; this prevents the cells secreting them from being digested by the enzymes; **(2mrks**)

10. Distribution of heat; regulation of PH of body fluids; protects the body against pathogens; helps in blood clotting; **(3mrks)**

11. (i) regulate the amount of light /controls the amount of light; (1mrk)

 (ii) Concentrateslight on thespecimen; (1mrk)

12. (a) a specific locality with particular set conditions where an organism lives ;( 1mrk)

 (b) It is the position of an organism and its role in that habitat;in terms of feeding relationships. (1mrk)

(c) it the maximum number of organisms an area can comfortably support ;(1mrk)

13. (a) B- for selective reabsorption of glucose, amino acids and **some** water;

C- Selective reabsorption of of sodium chloride; (2mtks)

 (b)Antidiuretic hormone ,ADH (1mrk)

 (C) Glomerulus; REJ Glomeruli (1mr)

14. It is a self-adjustingmechanism that maintains the internal body conditions of an organism at a constant/ steady state; (1mrk)

15. (a) for rapid transportation; of the absorbed food substances to various tissues.

 (b) to reduce the diffusion distance hence faster diffusion of food substances ;( 1mrk)

16. (i) formation of haemoglobinin; red blood cell; (1mrk)

 (ii) Formation of thyroxin; (1mrk)

17. (a) anaerobic respiration; (1mrk)

 (b) Brewing industry; sewage treatment; bread making; silage making, (1mrk)

18. presenceof melanin; which protects the skin against ultra-violet rays from the sun;

 - Tough cornified layer; which protects the skin against mechanical injury/entry of bactaria; has sebaceous gland; which secretes sebum which kills bacteria; (4mrks)

19.(i) arachnida; (1mrk)

 (ii) Has simple eyes; lung books for gaseous exchange; pair of Pedipalps. (1mrk)

 Chordata;

 ***Mark the first correct point.***

20. has moist surface; to dissolve respiratory gases; loosely packed cells; to allow for free air circulation; (2mrks)

21. (a) osmosis; ( 1mrk)

 (b)The visking tubing will increase in size/budge/ expand; ( 1mrk)

(b) The sucrose solution in the visking tubing is hypertonic while the distilled water is hypotonic; hence the visking tubing gains water by osmosis; making the visking tubing to increase in size/budge/expand; ( 3mrks)

22. (a) (i) producers; ( 1mrk)

 (ii) Tertiaryconsumer ; (1mrk)

 (b) –mice will increase in number, hawks will decrease because there is no food for them; Napier grass will reduce; ***mark the first two correct points*** (2mrks)

23. (a) L- Duodenum;

 M-Pancreas; (2mrk)

 (b) Stores bile temporarily; from the liver; (1mrk)

24. Crossing over is a process where the chromatids of homologous chromosomes cris-cross one another at a junction(chiasmata)and exchange genetic materials; while synapsis is when homologous chromosomes lie side by side to form a bivalent pair;

 (2mrks)

25. Low accumulation of toxicwastes; wastes are formed slowly; some wastes are re- utilized by the plant; store waste products in non- toxic form ; ( 2mrk)

 ***Mark the first two correct points.***

26. (a) (i) (ii) E; (1mrk)

P;(1mrk)

(b) (i) Dicotyledonae; Rej; dicotyledon,dicotyledonous ( 1mrk)

 (ii) Has centrally placed star-shaped xylem with phloem alternatingwith the arms of the xylem; ( 1mrk)

27. Density-refers to the number of certain organisms per unit area;

 Dispersion-the spread or distribution of organisms in a habitat;

 Population growth- the rate of increase in numbers; (3mrks)

28.

* Division-spermatophyta;
* Class- monocotyledonae; (2mrks)

29.

* Abstinence;
* Use condoms;
* Avoid sharing sharp objects with a person who is infected; (3mrks)

30. (i) Diffusion ; ( 1mrk)

 (ii) Because the sodium ions in the sea water is higher than in the cell sap ; (1mrk)

 **END.**