**BIOLOGY FORM THREE MARKING SCHEME**

Paper 1

**Time: 2 Hours**

MARKING SCHEME

1. (a) Ans. The study of cells in living organism;

(b) Ans. The study of insects.

1. Ans. The genetic material is not surrounded by a nuclear membrane/genetic material lacks a membrane/ not membrane bound/they are prokaryotic;

- Organelles are not enclosed by membrane;

- Lack most organelles e.g. mitochondria Rej. If no example/have few organelles;

Mark first two.

1. Ans. A stiff competition for available resources sets in, resulting in the elimination of one species;
2. .reduces density to give buoyancy to the plant –contains air for gaseous exchange

5 (a) Ans. Hypotonic solution;

(b) Ans. Turgor pressure; the cell gained water through the process of osmosis and becomes turgid; Rej:

Absorbed for gained;

6(a) Ans. Golgi apparatus/body;

(b) Ans. Chloroplast; Rej. Plural

7(a) Ans. Latin language is fairly static/it does not change with time or locality like most other languages;

(b) Ans. Generic name of wolf; Rej. Genus name

(c) Ans. Lion and leopard, they belong to the same genus Panthera;

8(a) Ans. Photolysis;

(b) Ans. Grana of chloroplast; Rej. Chloroplast

(c) Ans. Sunlight; chlorophyll;

9(a) Ans. – It ensures sufficient supply of nutrients and oxygen to the cells;

- It ensures exchange and removal of waste products of metabolism from the body cells to excretory

 organs;

- It ensures that blood flows out of the heart to all parts of the body;

 (b) Ans. The rhythmic contractions of the heart arises from within special cardiac muscles/the heart

 muscles are myogenic;

10. Habitat is a specific locality with a particular set of conditions where an organism lives; Ecological

 niche is the position that an organism occupies in a habitat in terms of physical state and its role in

11Ans. (a) Ans. Anaphase I;

(b) Ans. Homologous chromosomes separate at the equator/homologous chromosomes start migrating to

the opposite poles; sister chromatids attached at the centromeres;

(c) Ans. It is the reduction phase that results in haploid sex cells/gamete cells;

12.(a) Ans. *Salmonella typhi;*

(b) Ans. *Treponema palladium;*

13(a) AnsA – stoma; rj. Stomata;

 B – Epidermal cell;

 X – Guard cell;

14 (a) Ans. Tracheole; Rej. Tracheoles

(b) Ans. It is moist to dissolve gases/for diffusion of gases in solution;

 - It has thin epithelia to reduce distance for diffusing gases;

 - It has numerous fine tubes to increase surface area for gaseous exchange;

 Mark first two correct answers.

15. (a) All the active sites are occupied; hence rate of reaction is constant;

 (b) Increase/raise concentration of the enzyme;

16( (a) Ans. The energy produced by an animal when it is resting to maintain its life processes;

(b) Ans. The extra oxygen required to breakdown lactic acid that accumulates during exercise when

oxygen supply is less than required;

17.(a) Na+ ions – Ans. Active transport

Mg2+ ions – Ans. diffusion

 (b) Ans. Reduces the rate of active transport due to increased rate of respiration/oxidation of glucose,

 hence less energy;

1. (a) Ans. P – has more nitrogenous wastes; more water, more mineral salts/ions; more oxygen than R;

mark first two correct answers

1. (a) Arteries Veins

 - Transport blood from the heart - Transport blood from body tissue to heart.

 to the body tissue.

 - Transport oxygenated blood except - Transport deoxygenated blood except

 Pulmonary artery pulmonary vein.

20 (a) Ans. Transpiration.

(b) Ans. Cut shoot under water/assemble entire set up under water; apply petroleum jelly at the stopper –

Glass – shoot connections; to ensure no air enters the leafy shoot xylem/apparatus causing airlock; to

ensure apparatus is airtight;

 (c) High temperatures increase the transpiration rate, hence the bubble moves faster;

1. Ans. 1mm = 1000μm

 4mm = 4 x 1000μm

 = 4000μm;

 Average size of cell = $\frac{4000}{8}$ μm

 = 500μm;

1. - Numerous to increase the surface area for absorption of water

 - Have numerous mitochondria to supply energy (for active uptake of minerals);

 - Have thin walls for faster movement of substances;

 - Have large sap vacuole with solutes for steep concentration gradient;

23. - High humidity reduces concentration gradient of water vapour between the intercellular air

 spaces of the leaves and atmosphere hence reducing rate of transportation;

1. **Aerobic Anaerobic**

 -Uses oxygen; - Doesn’t use oxygen;

 - More energy given out; -Less energy given;

 - Occurs in cytoplasm and - Occurs in cytoplasm only;

 And mitochondria;

 - Complete breakdown of substrate -Incomplete breakdown of substrate;

 (1st two)

1. - Tanning hides and skins (in manufacture of leather)

 - Colchicine – Causes polyploidy;

 - Used in treatment of cancer; (any one)

1. Ans. It has stomata for efficient diffusion of gases; It is thin to allow gases to diffuse through short distances; It has air spaces for easy circulation of gases; it has broad and flat lamina to provide large surface area for absorption; Mark 1st three
2. Binary fission in amoeba

Spore formation in rhizopus

Budding in yeast

1. (a) - Industrial effluents;

 - Domestic sewage;

 - Hot water from industrial effluents

 - Soil erosion

 - Agricultural runoff;

 (b) – It decreases the amount of dissolved oxygen; causing suffocation of aquatic animals;

29. - Antigens A; Antigens B;

30. a) Ans. Because it is destroyed / denatured; by alkaline medium / bile salts in the duodenum;

 END