

TERM 2 - 2023

BIOLOGY – PAPER ONE (231/1)

FORM THREE (3)

MARKING SCHEME

1. Drought/ climate change;
Conservation of resources;
Pollution;
Food shortage/ famine;
Poor health; *Any 2x1 = 2 marks*

2. (i) Crustacea; must begin with capital letter *1x1 = 1 mark*
 - (ii) - Two pairs of antennae;
- Presence of carapace; *Any 2x1 = 2 marks*

3. Aerobic respiration produces more energy than anaerobic respiration; aerobic respiration glucose is completely oxidized; while in anaerobic respiration, glucose is partially oxidized; *3x1 = 3 marks*

4. (a) Hydrophyte/ Aquatic plant; *1x1 = 1 mark*
 - (b) Broad leaves provide large surface area for loss of excess water;
Flowers are raised above the water to allow pollination;
Presence of aerenchyma tissues to improve buoyancy;
Leaves have numerous chloroplasts that photosynthesize under low light intensity; *3x1 = 3 marks*

5. **A**-stores salt and sugars/maintains shape of cell;
B-enclose cell contents/entry of substances;
C-site for chemical reactions; *3x1 = 3 marks*

6. (a) Suffocation/ death; *1x1 = 1 mark*
 - (b) Vaseline blocks the spiracles/ no inhalation; hence respiration stops; toxic carbon (IV) accumulates in the body; *2x1 = 2 marks*

7. (a) (i) **B**-Nitrification; *1x1 = 1 mark*
 - (ii) **C**-Denitrification; *1x1 = 1 mark*
 - (b) Root nodules; *1x1 = 1 mark*
 - (c) Removes nitrates that are used to plants from the soil; *1x1 = 1 mark*

8. - Formation of ATP;
- Production of hydrogen atoms; *2x1 = 2 marks*

9. (a) Blood entering lungs; *1x1 = 1 mark*
 (b) Blood entering the lungs has released oxygen to tissues and carbon (IV) oxide formed is added; blood leaving lungs has received oxygen and released carbon (IV) oxide; *2x1 = 2 marks*
10. (i) Keeping collected specimens; *1x1 = 1 mark*
 (ii) Attract and trap small animals/ mammals/ rodents; *1x1 = 1 mark*
11. (a) *Vibrio cholerae*; *1x1 = 1 mark*
 (b) *Plasmodium malariae/ vivax/ ovale/ falciparum*; **accept** Plasmodium species *1x1 = 1 mark*
12. Cells are actively dividing; *1x1 = 1 mark*
- 13(a) To demonstrate that heat is produced during anaerobic respiration; *1x1 = 1 mark*
 (b) Rise in temperature; anaerobic respiration releases energy; *2x1 = 2 marks*
14. Number of body parts;
 Presence or absence of wings;
 Number of legs; *3x1 = 3 marks*
15. (i) Pulmonary artery; *1x1 = 1 mark*
 (ii) Hepatic portal vein; *1x1 = 1 mark*
16. (a) Splitting water molecule; Synthesis of energy; *1x1 = 1 mark*
 (b) Glucose; protein; lipid; *1x1 = 1 mark*
17. Makes raw materials available in cells;
 Removes toxic wastes from the cells;
 Facilitates movement of synthesized products to storage tissues; *2x1 = 2 marks*
- 18 (a) $P = \frac{FM \times SC}{MR} ; \frac{600 \times 500}{200} = 1500$ tsetse flies; *3x1 = 3 marks*
- (b) i) Wind/ temperature; *1x1 = 1 mark*
 ii) Predation/ competition; *1x1 = 1 mark*
- 19.(i) Lowers/ raises the body tube through longer distances to bring the image into focus; *1x1 = 1 mark*
 (ii) Concentrates light onto the stage; *1x1 = 1 mark*
- 20.(i) Parietal; *1x1 = 1 mark*
 (ii) Marginal; *1x1 = 1 mark*

- 21.(a) Negative (feedback mechanism); *1x1 = 1 mark*
 (b) Glucagon; *1x1 = 1 mark*
22. (i) Petals are free; *1x1 = 1 mark*
 (ii) Flowers bearing only the male reproductive parts; accept male flower *1x1 = 1 mark*
23. Proteins/ fatty acids/ amino acids;
 Vitamins
 Starch/carbohydrates/glucose; *3x1 = 3 marks*
- 24.(i) Position that an organism occupies in a habitat and its role; *1x1 = 1 mark*
 (ii) Dry weight of a living organisms at a particular trophic level; *1x1 = 1 mark*
- 25.(a) i 0/3 c 0/1 pm 3/3 m3/3; **reject** capital letter *1x1 = 1 mark*
 (b) Herbivorous; **reject** Herbivore *1x1 = 1 mark*
 (c) Absence of upper incisors;
 Absence of upper canines; *1x1 = 1 mark*
26. Carnassial tooth; *1x1 = 1 mark*
 Function - Slice through flesh and crush bones; *1x1 = 1 mark*
27. Secrete lytic enzymes that digest the vitelline membrane;
 Forms fine filament that penetrates the egg any two; *1x1 = 1 mark*
- 28.(i) cytology is the study of cells while entomology is the study of insects; *1x1 = 1 mark*
 (ii) Botany is the study of plants while zoology is the study of animals; *1x1 = 1 mark*
29. (i) For easy light penetration through the specimen;
 (i) Avoid distortion of the specimen / structures of the specimen; *1x1 = 1 mark*
1x1 = 1 mark
30. Has green pigment chlorophyll; that traps light energy; *2x1 = 2 marks*
31. (a) Animal; *1x1 = 1 mark*
 (b) Hook like structures that stick onto fur/hair of animals; *1x1 = 1 mark*

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