

# MARKING SCHEME BIOLOGY FORM 3 TERM 2 2024

1.
  - a)
    - i) Chloroplast ; rej any other
    - ii) Oxygen
  - b)
    - i) Provide the energy for photolysis / break down water into hydroxide ions and hydrogen ions required in the dark reaction;
    - ii) To provide Hydrogen ions ; required on the process a medium of reaction
  - iii) Provide carbon required to combine with hydrogen and oxygen to form a carbohydrate / glucose ;
  - c) ( respired oxidized) to produce cellular / cell energy / ATP; used in synthesis of cellulose at cell wall converted into starch and stored;
  
2.
  - (a) Regulates the amount of light passing through the condenser; (1mk)
  - (b) Concentrates light on the object on the stage; (1mk)
  
3.
  - (a) Manufacture ribosomes; (1mk)
  - (b) Synthesis protein; (1mk)
  
4.
  - (a) Catalase; (1mk)
  - (b) Liver; (1mk)
  - (c) Detoxify hydrogen peroxide; (1mk)
  
5.
  - (a) Double fertilization; (1mk)
  - (b) R - Endosperm  
S- Embryo; acc – plumule and radicle (2mks)
  
6.
  - (i) Kills animals reducing their numbers (1mk)
  - (ii) Better adapted organisms survive and reproduce increasing in number/ poorly adapted organisms die hence reduce in number; (1mk)
  - (iii) Some parasites transmit pathogens that kill host/ parasites weaken hosts that are killed by predators; (1mk)
  - (b)
    - (i) Biological control; (1mk)
    - (ii) Does not pollute the environment; (1mk)
  
7.
  - (i) Provide optimum pH for enzyme activities; kills micro-organisms in food; (2mks)
  - (ii)
    - Emulsification of fat;
    - Neutralize acid chyme;
    - Provide optimum pH (alkaline medium) (2mks) any 2 points
  
8.
  - (i)
 
$$R.Q = \frac{\text{Volume of CO}_2 \text{ produced;}}{\text{Volume of O}_2 \text{ consumed}}$$

$$\frac{102\text{CO}_2}{145\text{O}_2} = 0.7;$$
 (2mks)
  - (ii) Lipid; acc fat/oil (1mk)
  - (iii) Not soluble in water hence difficult to transport to respiring cells;  
Requires more oxygen to be oxidised compared to carbohydrates; (2mks)
  
10. Pancrease release glucogon; to stimulate the liver cells to convert stored glycogen to glucose; fat converted to glucose; reduces rate of respiration.  
Rej if source of glycogen is the liver
  
11. Thin membraned for easy diffusion of gases;  
Highly vascularised to transport gases;  
Moist surface to dissolve gases; (2mks)
  
12.
  - (a) Oxidize food to produce energy required in active transport
  - (b) Reabsorption of sugar and some salts by kidney;  
Absorption of digested food from alimentary canal;  
Excretion of waste products from body cell;
  
13.
  - (i) Collenchyma;

14. (ii) Sclerenchyma; xylem; tracheids;  
 (a) Bryophyta; (amk)  
 (b) A - capsule; B - seta; (2mks)  
 (c) Anchorage; Absorb water and mineral salts;

- 15a)  
 b). - Protandry/ protogyny; OWTTE  
 - Self-sterility;  
 - Heterostyly/ incompatibility;  
 - Dioeciousness; (2mks)

Mark 1<sup>st</sup> 2

- 16a)  
 (a) The genus name should start with a capital letter while the specific name should start with a small letter;  
 Both names should be underlined separately; (2mks)  
 (b) Binomial system;

17. - Have chlorophyll that absorb light for photosynthesis;  
 - Have grana that increase surface area for package of chlorophyll;  
 - Have stroma that contain enzymes that catalyse the process of photosynthesis; (2mks)

18. (i) Hydrolyse non-reducing sugar to reducing sugar/ Hydrolyse disaccharides to monosaccharides;  
 (ii) Neutralise the hydrochloric acid;

19. Hormones;  
 Enzymes; (2mks)  
 NB If specific hormones or enzymes are named they should be at least 3

20. High light intensity; increased/ High temp.  
 Strong wind; Low humidity; Low atmospheric pressure; (2mks)  
 Mark 1<sup>st</sup> 2

21. Carbon (IV) oxide combines with haemoglobin to carboxyhaemoglobin; carboxyhaemoglobin does not dissociate easily; hence reduce the capacity of haemoglobin to transport oxygen leading to suffocation;

22. a) Diffusion;  
 b) i) Reducing sugars/simple sugars/glucose;  
 ii) Diastase converts starch to reducing sugars; so present in visking tubing then due to small sized molecules of reducing sugar and semi-permeability of the visking tubing; the molecules moved across the semi-permeable to the beaker; so present both in the visking tubing and the beaker. (Rej- Second mark:-If size and semi permeability are not indicated)  
 c) i) Proteins; reject Amino acids  
 ii) The molecules of proteins are large/big so cannot pass through the pores of the semi-permeable membrane visking tubing  
 c) Turgid; Accept turgidity

23 (a)

<u>Specimen</u>	<u>Steps</u>	<u>Identity</u>
P:	1a, 3a, 4b, 5a;	Butterfly;
Q:	1a, 2b, 3a, 4a;	Dragon fly;
R:	1a, 2a;	House fly
S:	1a, 2b, 3b, 6b;	Grasshopper;
T:	1b, 7b;	Flea;

[10/2 = 5 marks]

- (b) (i) *Insecta*; (ii) *Three body parts*; *3 pairs of legs*; [mark 1<sup>st</sup> one]

- (c) (i) *Both have walking legs*; *Both have antennae*; *Both have segmented bodies*; [mark 1<sup>st</sup> 2]

(ii)

<i>S</i>	<i>T</i>
<i>Bigger in size</i>	<i>Smaller in size;</i>
<i>Yellowish brown/yellowish green body colour</i>	<i>Brownish red body colour;</i>
<i>Has wings for flight</i>	<i>No wings;</i>
<i>Pointed tip of abdomen</i>	<i>Rounded tip of abdomen;</i>

[mark 1<sup>st</sup> 3]

- (d) (i) *Terrestrial*; (ii) *Has legs for walking*;

