



**231/1 MS
BIOLOGY
Paper 1
June 2023
MARKING SCHEME**

**THE SHOOTING STARS EDUCATIONAL CONSULTANCY
Kenya Certificate of Secondary Education**

**BIOLOGY
PAPER 1**

**MARKING SCHEME
(CONFIDENTIAL)**

This marking scheme consists of 4 printed pages

1. (a) (i) Site for protein synthesis; (1mk)
(ii) Contain lytic enzymes which breakdown large organic molecules/ organelles/
entire worn out cell; (1mk)
- (b) Guard cell (1mk)
2. (i) Entamoeba hystolytica (1mk)
(ii) Mycobacterium tuberculosis (1mk)
3. (a) Maintains a steep concentration gradient across the respiratory surface; ensuring
maximum extraction of oxygen from water to the blood; (2mks)
(b) Thin epithelium for faster/ quick diffusion of gases;
Have tracheole fluid/ moist surface to dissolve gases in solution before diffusing;
Highly branched to increase surface area for gaseous exchange; (mark first two)
4. (i) Motor/ Efferent neurone
(ii) Has a cell body on one end of the axon
(iii) (Arrow to point to the direction of the terminal dendrite)
(iv) Insulation;
5. (a) Adenosine diphosphate/ ADP
(b) K – has two phosphate molecules
ATP - has three phosphate molecules
K – has less stored energy
ATP – has more stored energy
(c) Mitochondrion rej; Mitochondria
6. (a) Intermittent growth curve;
(b) (i) Growth;
(ii) Ecdysone/ moulting hormone;
(c) Results in fertilization by conveying the male gametes to the female gamete;
7. Temperature;
Oxygen concentration;
Inhibitors – prevents ion absorption
Soil PH – H^+ compete with cations Ca^{++} , K^+ in acidic conditions hence lowering their absorption.
Anions e.g. Cl^- compete with OH^- at high PH
8. Absorb lead from car exhaust fuses and pass it to animals and humans through the food chain
9. (a) Thigmotropism/ Haptotropism; (1mk)
(b) Rheotaxis; (1mk)
(c) Geotropism; (1mk)
10. (a) Deamination; (1mk)
(b) Enzyme originase; (1mk)
(c) Helps in removal of excess amino acids which cannot be stored in the body; (1mk)
11. (a) Excess glucose; converted in the liver and stored as glycogen;
(b) After taking carbohydrate meal a lot of glucose is absorbed rising the level; All excess
glucose was converted to glycogen causing rise in glucogen level;
12. (a) Regular alteration of a haploid reproductive phase/ gametophyte and a diploid vegetative
phase sporophyte;
(1mark)
(b) Bryophyta/ Pteridopyta;
(1mark)

13. Low altitude areas have favourable temperature for working of enzymes; faster metabolic process leading to faster growth; high concentration of CO_2 hence high rate of photosynthesis; High CO_2 concentration in low altitude leads to increased rate of respiration to generate energy for faster growth;
14. (a) Neutralise excess acid (HCl);
(b) X – Condensation;
R – Sucrase/ invertase;
15. Exudation; Transpiration of excess water, guttation, deposition, diffusion; (mark 1st two)
16. (a) A condition where one male nucleus fuses with the egg cell to form a zygote, the other male nucleus fuses with the two polar nuclei to form a triploid nucleus;
(b) Basal; parietal; axile; free central; central;
17. Resistance to diseases.
Early maturity
Adaptations to local conditions
High yields
Increased length of production
18. (a) Cowper's gland (bulbo urethral gland);
Prostate gland; seminal vesicles; (2mks)
(b) (i) Mitochondrial sheath has more mitochondria; (1mk)
(ii) Tail with axial filament; (1mk)
19. (i) Old sight/ prebyopia; (1mk)
(ii) Cataract; (1mk)
(iii) Myopia/ short sightedness; (1mk)
20. (a) $\frac{10}{35} \times 100 = 28.5\%$ i.e. $Tail\ power = \frac{Length\ from\ tail\ tip\ to\ anus}{Length\ from\ tail\ tip\ to\ mouth} \times 100$
- (b) To create a high propulsive force/ thrust
21. (i) Initiates the onset of sperm production;
(ii) Causes interstitial cells to secrete androgens;
22.

Endocrine system	Nervous system
(i) Uses hormones to relay impulses	(i) Uses electrical charges caused by chemical Concentration
(ii) Hormones transmitted through the blood	(ii) Impulse transmitted through nerve cells;
(iii) Hormones reach all parts of the nerve body	(iii) Nerve impulses are transmitted through cells to specific parts of the body;
(iv) Effects are long lasting	(iv) Effects are rapid and short lived;
(v) Responses usually slow	(v) Responses usually fast;
23. Struggle for existence – environmental pressure on the population in order to survive;
Survival for the fittest – advantageous variations an individual possesses to make it survive; (2mks)
24. Thinness of the villi wall; Membranous
Numerous villi giving large surface area;
Highly vascularised;

25. Tendons – structures which attach skeletal muscles to bone
Ligament – structures that hold two bones together
26. (i) Control the amount of light entering the microscope;
(ii) For magnification of specimens; (2mks)
27. (i) Water vapour accumulates in the sunken pits; creating a barrier of diffusion and evaporation of water; / reduces saturation deficit (2mks)
(ii) Reduces leaf surface area exposed to transpiration reducing water loss;
- 28.
- | R. B.C | W. B. C |
|----------------------|-------------------|
| Contains haemoglobin | Lacks haemoglobin |
| Non nucleated | Nucleated |
| Biconcave shape | Amoeboid |