

LONDIANI SUB-COUNTY SECONDARY SCHOOLS
JOINT EVALUATION EXAMINATION SEPTEMBER 2022
BIOLOGY 231/1 MARKING SCHEME

1. (a) Niche

The place (habitat) where the organism lives and its function in the habitat;
(1mark)

(b) Ecology

The study of the inter-relationships between organisms and their environment; **(1mark)**

2. Water would be drawn into the amoeba cell by osmosis;

Contractile vacuoles would form (more frequently) to discharge the excess water; **(2marks)**

3. a) Used for movement/expelling unwanted particles; **(1mark)**

(b) Trachea or tracheal epithelium; Oviduct; Inner ear **(Max..2marks)**

4. (a) Negative photo taxis; **(1marks)**

(b) Enables them to escape harmful stimuli such as excess heat which dehydration; enables them to seek favorable habitats and escape predators
(max.1mark)

5. Moist to dissolve respiratory gases; thin epithelium for faster diffusion/shorter diffusion distance; Vascularised to transport respiratory gases; **(3marks)**

6. (a) These are organs/structures that are reduced in size and have ceased to function in an organism;

(1mark)

(b) Enables organisms to develop (adaptation) analogous structures of similar structures in completely unrelated groups of organisms to exploit similar environments; **(1mark)**

(c) It lays emphasis on acquired characteristics which cannot be inherited;
(1mark)

7. (a) Phenotype

Is the observable characteristics of an organism as influenced by genes ; **(1mark)**

(b) Test cross

The cross used to determine whether an individual exhibiting dominant traits is homozygous or heterozygous by crossing it with a homozygous recessive individual for that particular trait; **(1mark)**

8. Acts as a cushion that absorbs shock and reduces friction;

Makes vertebral columns flexible by allowing for a certain degree of movement between the vertebrae; **(2marks)**

9. (a) Choroid

It has pigmented cells that gives the eye a dark colour and prevents reflection on light in the eye; has numerous blood vessels that supply nutrients to the eye; **(max.2marks)**

(b) Retina

It is transparent; contains rods and cones that perceive light ;
(Max.2marks)

10. a) Wind; **(1mark)**

b) To enable it trap pollen grains in the air; **(1mark)**

11. a) Calf has large surface area to volume ratio than the adult; hence calf loose more heat than the adult ;

(or accept...converse) (2marks)

b) Elimination of uric acid requires less water than ammonia, hence (more) water is conserved;

Uric acid is less toxic than ammonia hence safer to excrete where there is less water; **(2marks)**

12. a) K - Root hair **(1mark)**

L - Xylem vessel **(1mark)**

b) Active transport/diffusion. **(1mark)**

13. a) The roots of herbaceous plants absorb water which eventually get into cells by osmosis;

The cells after taking in water, become turgid; this turgidity of the cells provides support to the plant; (3marks)

b) Xylem vessels; Sclerenchyma tissue; (2marks)

14. (i) Roots – inhibit growth; (1mark)

(ii) Short – promotes faster growth; (1mark)

15. (a) (i) Anaphase 1(1mark)

(ii) Homologous chromosomes separates at the equator;

Chromosomes start migrating to opposite poles; Sister chromatids attached at the centromere; (Max...3marks)

(b) Spindle fibres (1mark)

16. It provide platform where objective lens is attached;

It revolve to make objective lens click in position for viewing to be done;

(Max..1mark)

17. 1(a) – Animal with two pairs of legs .. go to 2;

(b) –Animal with four pairs of legs .. go to ..; (2marks)

18. (a) Young people are actively/ rapidly growing hence require more energy than older people

NB: growth has to be mentioned (1mark)

(b) Manual workers require more energy than secretary workers (1mark)

19. The leaves exposed a smaller surface area to the sun; thus reducing transpiration/Excessive water loss;

(2marks)

20. i) Plasmodium (1mark)

ii) Female Anopheles mosquito (1mark)

21. - Central nervous system

- Peripheral nervous system (2marks)

22. i) Sensory neurone (1mark)

ii) P-myelin sheath/neurilemma (1mark)

Q-synaptic knob (1mark)

iii) To perceive stimulus and convert it into nerve impulse (1mark)

23. -Organisms named using genus and species

-The names are latinized

-The names are written in italics

-Genus

(4marks)

24. - Cell wall

- Chloroplast (2marks)

25. a) - Mitochondrion (reject mitochondria) (1mark)

b) - Generate energy in the form of Adenosine Triphosphate (ATP) (1mark)

c) - They create a large surface area for attachment of respiratory enzymes

(1mark)

d) - Cell membrane, outer membrane, and inner membrane. (marked

as a whole.....2marks)

e) - cardiac muscle

-skeletal muscle

-sperm cell

(2marks)

26.a) - ATP,

- Hydrogen ions,

- Oxygen

(Max2marks)

b) - They grow in nitrate deficient soils hence trap and digest insects to obtain nitrogenous compounds (marked as a whole....2marks)

27. a) -Antigen B and Antigen D (2marks)

b) -The antibody a in the blood plasma of the recipient would react with the donor antigen A causing agglutination. (1mark)

28. a) -Aerobic respiration

(1mark)

b) -There is complete oxidation of the substrate to carbon (IV) oxide and water. (1mark)

c) - To increase supply of oxygen required for complete oxidation of the accumulated lactic acid into water and carbon (IV) Oxide

(2marks)

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