

BUTULA SUB-COUNTY EXAM 2021- DECEMBER.

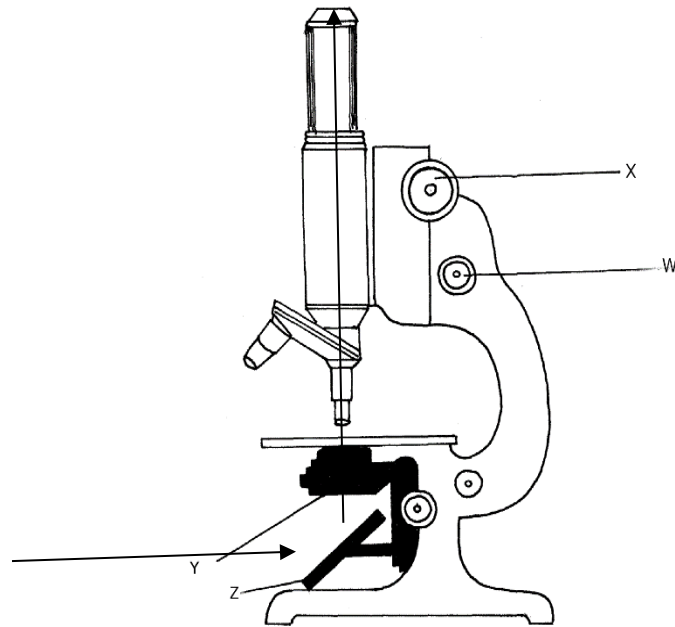
BIOLOGY PAPER 1.

MARKING SCHEME.

1. a) X - Coarse Adjustment knob;
Y – Diaphragm;

- b) Arrow to be on diagram

(AWARD A MARK FOR EACH ARROW DRAWN CORRECTLY)



2. a) - The species name is written in capital letter;

- The two names are not underlined (separately) or italicized;

b) Musca domestica;

3. (a) X – Trachea;

Y – Tracheoles;

Z – Muscles tissue;

- (b) - Moist to dissolve gases;

- Large surface area for maximum gaseous exchange;

-well ventilated for bringing in fresh air rich in oxygen and for expelling used air rich in carbon (IV) oxide;

(any one)

4. (a) Nastic movement/Haptonasty/Thigmonasty;
 (b) Phototaxis;
 (c) Chemotaxis;
5. a) Phylum Chordata;
 b) **a** – Pisces; **b** – Aves;
6. (a) Total number of organisms belonging to same species in a particular habitat at a particular time;
 (b) i) To allow time for marked grasshoppers to mix freely/uniformly with the rest;
 ii) From the data calculate the population size of grasshoppers in the grass field;

(2 marks)

$$P = \frac{\text{First capture} \times \text{second capture}}{\text{Marked recapture}}; \quad \frac{36 \times 45}{4} = 405; \text{ grasshoppers}$$

- 7.. (a) Diffusion;
 (b) Blue black colour in the visking tubing;
 Iodine molecules diffuses into the visking tubing as they are small in size therefore blue black colour;
 Brown (Iodine colour) in the solution persisted because no starch could move out of the visking tubing as they are large in size;

8.a) *Adenosine triphosphate*;

b).

k	ATP
Lower energy form	Higher energy form;
Has 2 phosphate groups	Has 3 phosphate groups;
Formed when ATP is hydrolyzed to release energy	Formed by addition of one phosphate group;

(Any two)

c) *Mitochondrion*;

- 9.
- Small in size;
 - Dense cytoplasm;
 - Prominent number;
 - Thin cell wall;
 - Lack vacuole;
 - Actively dividing;
 - Tightly packed;
 - Cuboidal;

(Any three)

10. a) S Amniotic Membrane;

P Amniotic fluid;

b) -Closed up cervix;

-Unwidened cervix;

-Unbroken waters;

-Head not pointing the cervix;

(Any two)

11. Biceps contract while triceps relax to bend the arm; Biceps relax while triceps contract to straighten the arm;

12. a) C-G-G-C-T-A-A-A-T-G-C-C;

b) C-G-G-C-U-A-A-A-U-G-C-C;

13. Numerous villi and microvilli;

14. a) Pelvic girdle;

b) F – Acetabulum; G – Obturator foramen;

c) Femur;

15. a) Hypermetropia (long sightedness);

b) Short eyeball or weak refractive power of the lens;

c) Wearing of convex lenses;

16. -Contains salivary amylase acts on starch;
- Contains bicarbonate salts that provide alkaline pH for enzyme action;
-Contains water and mucus that lubricates and soften food for easy swallowing;

(Any two)

17. a) Anaerobic respiration;

b) Lactic acid;

18. a) Mycologist;

b) Evolution;

19. Water absorption is by osmosis which does not require energy; mineral salts are absorbed by active transport that requires energy that depends on oxygen that is deficient in water logged soil;

20. a) Biological control

b) No pollution; No residual effect; (mark any one)

21. The gene for resistance due to mutation is transmitted; hence creating a new population of resistant strains;

22. a) Stimulates the body to make antibodies;

b) i) Not to use up oxygen;

ii) Not to lose water to the neighboring cells;

23. a) Antidiuretic hormone/ Vasopressin;

b) Pituitary gland;

24. a) i) Convergent evolution;

ii) Analogous structures;

b) -Allows survival of organisms with better qualities;

-Eliminates organisms with unfavorable traits;

25. a) Salt increases osmotic pressure by blood; hence more water is reabsorbed from kidney tubules;

b) To reduce heat loss; feathers trap more air that insulates against heat loss;

26 a) Circulation system transports away the respiratory gases; creating a steep diffusion gradient;

b) Haemoglobin- A protein found in the RBCs to transport oxygen;

Myoglobin- A protein found in muscles that stores oxygen;

27. Babies have a larger surface area to volume ratio hence they lose heat; require more oxygen for respiration to maintain body temperature at optimum;

