Murang’a East Biology Marking Scheme

Paper 1

1. - cell division

* Cell growth
* Protein synthesis
* Cell respiration
* Cytoplasmic streaming
* Cell secretion/excretion

2. (a) Intermittent growth curve;

(b) (i) Growth;

(ii) Ecdysone/ mounting hormone;

(c) Results in fertilization by conveying the male gametes to the female gamete; rej. It carries/transport/medium

3 .i. Salmonelatyphi

ii. *Entamoebahistolytica*

*iii. Schistosomamansoni*

4 Waste products in plants are mainly made from carbohydrate which are not as harmful as those from the protein materials.

Waste products are formed slowly /little accumulation of wastes / plants are less active; wastes such oxygen and carbon (iv) oxide are re-usable / recycled;

Some wastes such a gum and resin are stored in insoluble forms in dead tissue;

Some wastes can be removed by diffusion;

5.a) Visking tubing in volume /bulge/swell/expand res. Turgid

b. Water move from the beaker to the visking tubing by osmosis through semi-permeable membrane. Sucrose in the visking tubing is hypertonic to water in the beaker.

6. . (a) Neutralise **excess** acid (Hcl); rej. Without excess.

(b) X – Condensation;

R – Sucrase/ invertase;

7.. (a) Maintains a **steep concentration gradient** across the respiratory surface; ensuring maximum extraction of oxygen from water to the blood; rej. Without **steep concentration gradient** (2mks)

(b) Thin epithelium for faster/ rapid diffusion of gases; rej. Without fast/ rapid

Have tracheole fluid/ moist surface to dissolve gases in solution before diffusing;

Highly branched to increase surface area for gaseous exchange; (mark first two)

Rej. Highly vascularised

Thin wall for epithelium

8..Resistance to diseases.

Early maturity

Adaptations to local conditions

High yields

Increased length of production

9.(a) ornithology;

(b) Biochemistry;

10. (a) i c pm m

(b) Herbivorous; No incisors and canines on the upper jaw;

11. (a)Herbaceous plants absorb water through osmosis, parenchyma cells become turgid and plants gain support by turgor pressure;

(b) (i) Cellulose and pectins; (ii) Lignin;

12. Maintaining buoyancy; Storage tissue;

13. Antigen B; Rhesus antigen;

14. (a) Test tube A - Brown colour of iodine solution remains;

Test tube B - Blue -black colour observed;

(b) In test tube A, starch was broken down by action of salivary amylase in saliva to maltose; while in test tube B, the enzyme salivary amylase in saliva was denatured by boiling;

the beaker to the visking tubing by osmosis through semi-permeable membrane. Sucrose in the visking tubing is hypertonic to water in the beaker.

15. a) Variegated leaves have less chlorophyll hence synthesize less food while non-variegated leaves are entirely green with more chlorophyll hence synthesize more food; 1mk

b) - Thin membrane enhance easy diffusion of carbon (IV) oxide;

- Broad leaves increases surface area for photosynthesis process; 1mk

c) – Production of food;

Production of oxygen;

- Removal of carbon (IV) oxide from the air;

3mks

16.a) Wing of a bird, hand of a man, flipper of a whale and foreleg of horse; 1mk

NB Mark as a whole

b)Wing of an insect and of a bird; 1mk

c) Divergent; 1mk

17.a)Monocotyledonae

b)Vascular bundles are randomly scattered within the cortex; 1mk

18. (i) To increase the chances for pollination; 1mk

(ii) So that the pollen grains on the insect’s bodies stick onto them; firmly attached to avoid any breakage when the insect makes contact; 2mks

19.a.) i) Ultra filtration

ii) sufficient pressure to force the filtrate through

pores in the endothelium of glomeruli and epithelium of Bowman’s capsule to allow selective filtration.

-urea

- Glucose

- Amino acids

- salts.

1. a) inability of seed to germinate despite all the conditions necessary for germination being provided.

-scarification

- Removing germination inhibitors

- Allow embryo to mature before planting

- Increase concentration of hormones which stimulate germination

21. **High auxin concentration** produced by terminal bud/ apical meristem, inhibits lateral buds growing into branches; removal of terminal bud/ apical bud lowers the concentration of auxins/ lowers the inhibition effect (hence sprouting of lateral buds; Rej without high concentration

22a)(i) Hold the specimen on the slide to keep it in a firm position; 1mk

(ii) Contributes to the total magnification of the specimen together with the objective lens; 1mk

b) The coarse adjustment knob moves the body tube over longer distances; it would easily cause the objective lens to hit/tough the slide and cause destruction of both slide and lens; 2mks

23. a) Mitochondrion; 1mk

b) A – outer membrane;

B- inner membrane;

C – matrix; 3mks

c)Increase the surface area over which respiration takes place; 1mk

d)Adenosine Triphosphate (ATP); 1mk

24. a) Thrombosis; Accept coronary thrombosis;

Cerebral thrombosis

* varicose veins;
* High blood pressure/Hypertension;
* Arteriosclerosis; 2mks

b) – Platelets initiates blood clotting on damaged vessel. The clot prevents entry of pathogenic micro-organisms;

- Some white blood cells (Phagocytes) engulf and digest pathogens thus protecting the body against pathogens;

- Lymphocytes secretes antibodies that destroy pathogens and their secretions; max 2mks