END-TERM TWO EXAMINATIONS

BIOLOGY – (231)

FORM 1 (1)

MARKING SCHEME

1.a) Name the structures used for locomotion in each of the following organisms. (2mks)

i).Euglena.

Flagella;

ii).Paramecium.

Cilia;

b) Blackjack (Bidens pilosa) belongs to the family Compositae. What is the plant's (2mks).

i). Genus

Bidens;

ii).Species

Pilosa;

2. (a) cellulose;

(b) Nucleus correctly identified and labeled;

(c) Z Chloroplast;

Y Tonoplast;

(d) Storage of salts;

Osmotic functions;

3. (a) Marked on the diagram;

(b) site for photosynthesis;

(c) cristae/ folded in membrane to increase the surface area for respiration

4. (a) Method of illumination in use;

(b) Type of magnification lens in use;

5. (a) Make different parts/ structures of the cell more clear/ distinct;

May reveal the chemical composition of the of tissues, cells as when Iodine solution is used;

(b) Avoid trapping air/ air bubbles between the slide and the cover slip;

(c) Draw water/stain/dye from one side of the cover slip to the other;

To remove excess water/ stain/ dye trapped between the slide and the coverslip

6. Total magnification = eyepiece lens magnification X objective lens magnification

(X10) x (X45) ;

= X 450;

7. (i) Roothair cell;

(ii) extended roothair;

8. (i) The larger the cell, the smaller the surface area to volume ratio;. The converse is true

(ii) The smaller the cell, the larger the surface area to volume ratio and therefore the faster the rate of diffusion;

9. cell size = Diameter of the field of view

The number of cells across the diameter

= 5mm/8cells;

=.625 x1000micrometers;

= 625 micrometers;

10. (a) (30-33/30) x 100% ; =10%

(b) solution Q2 is hypertonic to the cell sap of potato cells; the cells of potato cylinder lost water molecules to the surrounding/Q2 by osmosis;

(c) It is a control experiment;

11. (a) movement of water molecules from a hypotonic solution to hypertonic solution across a semi permeable membrane;

(b) since water molecules move from their region of higher concentration to a region of lower concetration;

12.(a) Donkey and horse are not of the same species;

13 (a) concentrate light rays onto the object/stage;

(b) Regulate/ Control amount of light entering the stage/object of a light microscope;

14. Palisade;

Mesophyll;

Guard cells;

15. Plasmolysis is the detarchment of cell membrane from the cell wall of a plant cell after excess water loss in a hypertonic solution

Haemolysis is the bursting of red blood cell after excessive intake of water molecules from a hypotonic solution;

16. connective;

Epithelial;

17. (a) movement of particles/ substances/ molecules from a region of high concentration to a region of low concentration;

(b) Thinner inner membrane;

Smaller particles;

Lighter particles;

Higher temperature;

Steeper concentration gradient;

18 (a) on the diagram;

(b) posess electric charges;

Semi permeable

Denatured by temperatures beyond 60 ^{o}C sensitive to temperature/pH change

19. (a) fertilization;

(b) transmission of nerve impulses;

(c) control opening and closing of the stomata;

20. (a) Xylem supply water that is a raw material;

Phloem carry away products of photosynthesis;

(b) for storage purposes since starch is less reactive;

Starch is osmotically inactive thus prevents alteration/ change in osmotic pressure of cells;

21. Organism, organ system , Organ , Tissue, Cell. Organelle;

22. (a) F. Epidermal;

B. Palisade;

(b) Passage of Carbon(IV)oxide into the leaf for photosynthesis; removal of oxygen as a waste during photosynthesis;

(c) Numerous chloroplast;

Closer to the source of light;

Closely packed for maximum absorption of light;

(d) A Cuticle;

E Lower epidermis;

I Xylem vessels/ xylem;

23 pitfall trap; catches small crawling animals;

Bait trap; attract and trap small animals;

Pooter; suck small insects/ animals;

24. E. Nucleolus;

F. nuclear pore;

25. (a) osmosis;

(b) Water level in the petri-dish increased;

(c) The water levels in the petri-dish and in the Irish potato will remain the same/ no water movement will take place;

Boiling destroys the cell membrane; therefore osmosis will not take place;