231/1 BIOLOGY (THEORY)

FORM 3 PAPER 1

MARKING SCHEME

1. (a) Nucleous; (1mk)
   (b) Mitochondrion; (1mk)
   (c)Lysosomes; (1mk)
2. Phagocytosis; (1mk)
3. –by blood transfusion;
   -by eating rich in iron /eating liver/kales/spinach/taking iron tablets;
   -drinking water/juices/fluids;
   -by blood tranfusion; 3mks
4. L_1 –this solution was hypotonic; and the cortex cells were hypertonic; hence cortex cells drew in water by osmosis becoming turgid;
   -L_2 –this solution is hypertonic to it. Hence cortex cells lost their water by osmosis and become flaccid(6mks)
5. –Their leaves are highly dissected branched to increase surface area for trapping light;
   -Presence of numerous chloroplasts to absorb light/epidermis has chloroplasts for absorbing light/chloroplasts can absorb light of low intensity; 2mks
6. –they would complete for the same resource food; leading to death of one the species/migration;(2mks)
7. (a)- have a film of water for dissolving gases.
   -have a dense network of blood capillaries;
   -are one-cell thick for faster diffusion of gases; 3mks0

   (b) –diaphragm flattens;

   -External intercostals muscles contract;

   -internal intercostals muscles relax;

   -ribs move upwards and outwards;

   -pressure falls; and volume increases making air to rush into the lungs; @½= 3mks

8. (a) A –will produce antibodies against Rh antigen in A+ ;resulting agglutination of A-blood; 2mks
   (b) Heparin; 1mk
9. (a) Bryophyte; 1mk
   (b) A-Seta; 1mk
   B- Rhizoid; 1mk
   C-Capsule; 1mk

(c) Production of spores;(1mk)

10. – Insulin; 1mk
    - glucagon; 1mk
11. –they have a symbiotic protozoa in their gut/rumen; which produces enzyme cellulose to digest cellulose; 2mks
12. (a)(i) Diffusion;(1mk)
    (ii) The ions are more in the sea water than in the sap ;(1mk)
    (b)(i) Iodine ions ;(1mk)
    (ii) The ions are up taken by active transport /the chemical will inhibit enzymes, hence no active transport occurs; 1mk
13. (a)X- polar nuclei; (1mk)
    Y- Egg cell ;(1mk)
    (b) X- triploid endosperm /primary endosperm; 1mk
    Y- The embryo; 1mk
    (c) It leads to mixing of genes /causes variations to develop; which lack in self-pollination ;(2mks)

14. (a) – are insoluble in water hence difficult to transport;
    -require more oxygen than carbohydrates to oxidize; 2mks
    (b) Helps to identify the type of food/substrate oxidized;
    Helps to identify the type of respiration; 2mks
15. –there formation of carbon (II) oxide when charcoal burns in less oxygen ;which permanently combines with haemoglobin;leading to suffocation; 3mks
16. (a) K- manufacture food/nutrient /carbon (IV) oxide; Acc.specific nutrients.
    L-Water and mineral salts /oxygen;
    Ref: water or mineral salts /oxygen;
    Ref: Minerals 2mks

    (b) Water and mineral salts /oxygen are transported/absorbed by L;(1mk)

17. (a) Photolysis; 1mk
    (b) Provides H+ required to reduce carbon (iv) oxide in the dark stage; (1mk)
18. (a)Carbominohaemoglobin /dissolved carbon (iv) oxide;(1mk)
    (b) (i) Water; 1mk
    (ii) Enzyme –carbon anhydrase; 1mk
    Role- enhances the reaction between carbon (iv) oxide and water ;(1mk)
    (c) Ca^{2+} are required in the conversion of Prothrombin to thrombin ;(1mk)
19. (a) To add carbon (iv) oxide to the water;(1mk)
    (b) Due to decrease in rate of photosynthesis due to decreased light intensity ;(1mk)
    (c) To provide an aquatic environment for the water weed;(1mk)
20. (a)(i) Algae/green pond weed;(1mk)

(ii) Sun; 1mk

(iii)- Loss through sweating /urination;

-Loss through respiration /heat;

-Loss through defecation;

Max 2= 2mks

(b) Green pond weed ⟶ smell fish ⟶ other;

Algae ⟶ small fish ⟶ otter; 2mks

21. Mycobacterium tuberculosis;(1mk)
22. To secrete mucus; (1mk)
23. Chordata;(1mk)
24. Cephalothorax/prosoma;(1mk)
25. Some are edible;

    -some are used to make antibiotics /medicine (eg penicillium notatum)

    -some cause disease in human; livestock and crops;

    -some of edible yeast is used in brewing and baking industries.etc max 2mks
26. When the osmotic pressure of blood rises when the amount of water in the blood falls/after intake of salt;(1mk)
27. (a) When the androecium /male part of the flower matures earlier than the gynoecium/female part; 1mk

    (b) When the style is much longer than the filament (and stigma hangs outside the flower/when the filament is much longer than the style (and anthers hang outside the flower).(1mk)