1. (a) To increase surface area for attachment of respiratory enzymes (1 mark)

   (b) (i) Stroma (1 mark)
   (ii) Bearing photosynthetic pigments (1 mark)

2. (a) Ovule (1 mark)
   (b) Ovary (1 mark)

3. (a) Sclerenchyma
   Xylem vessels (2 marks)

   (b) Cells take in water and become turgid (1 mark)

4. (a) Sebum (1 mark)

   (b) - Kills micro organisms
   - Cools the body
   - Getting rid of wastes (2 marks)

5. Stomata found only on upper epidermis to allow efficient gaseous exchange;
   Presence of aerenchyma tissue to enable it float and storage of air. (2 marks)

6. (a) - The genetic material in not surrounded by a membrane.
   - Smaller in size
   - Lack most organelles (2 marks)

   (b) Arthropoda (1 mark)

7. (a) Thrombosis / varicose veins / arteriosclerosis (1 mark)

   (b) - Regulation of body temperature by distributing heat generated by the body
   - Regulation of pH of fluids
   - Defence against disease causing organisms (3 marks)

8. - Prevents scurvy (2 marks)
   - Development of healthy gums

9. (a) Sister Chromatics separate. Sister chromatics move to opposite poles of spindle fibre (2 marks)

   (b) - Gamete formation (2 marks)
   - Source of variation

10. Move towards favourable environment (1 mark)

11. Conversion of excess glucose to glycogen for storage (1 mark)

12. (a) The visking tubing will become turgid (1 mark)

(b) Water moves from beaker into the visking tubing by osmosis; through semi-permeable visking tubing; with hypertonic solution (3 marks)

13. (a) ATP (1 mark)

(b) (i) Brewing of alcohol
(ii) Baking of bread (2 marks)

14. (a) In epigeal germination cotyledons are brought above the ground level while in hypogeal the cotyledons remain below surface (1 mark)

(b) Required in aerobic respiration; to release energy from food reserves for germination (2 marks)

15. Current continents existed as one large mass. The present continents drifted leading to isolation of organisms; organisms is each continent evolved along different lines, hence emergence of new species. (3 marks)

16. (a) Recycling of nutrients

(b) Regulation of numbers / population (2 marks)

17. (a) Homodont is having same kind of teeth while heterodont is having different kind of teeth (1 mark)

(b) Cutting and crushing / chopping; (1 mark)

(c) $i\frac{0}{3}$ $c\frac{0}{1}$ $pm\frac{3}{3}$ $m\frac{3}{3}$; (1 mark)

18. (a) Emulsification of fats/Breaking into small droplets increase; surface area for digestion; Neutralise acidity of chime (2 marks)

(b) Increase in substrate concentration increases enzyme action up to a certain point and further increase of substrate will have no effect (1 mark)

19. (a) (i) Protoandry: The male reproductive organ matures earlier than the female reproductive organs (1 mark)

(ii) Plants with shorter stamens than pistils which render it impossible for the pollen grains from the stamens to reach the stigma (1 mark)

(b) - Increase in variety
- Hybrid vigour
- Resistance to diseases (3 marks)

20. (a) Haptotropism / Thigmotropism (1 mark)

(b) - Expose leaves in positions for maximum absorption of sunlight for photosynthesis
- Enables roots of plants to seek water
- Enables plants to obtain mechanical support especially those that lack woody stems (3 marks)

21. (a) X - Motor neurone
Y - Sense organ / Receptor (2 marks)

(b) Acetylcholine

22. (a) - They alter the shape of the lens
- They contract and relax to alter the shape of the lens (1 mark)

(b) Rods perceive light of low intensity and are not sensitive to colour therefore low visual acuity; while cons perceive light of high intensity and are sensitive to colour therefore high visual acuity (2 marks)

23. (a) Ear ossicles - Transmit and magnify sound vibrations
(b) Cochlea - Converts nerve vibrations into nerve impulses
(c) Semi circular canals - Posture and balance
(d) Eustachian tube - Balance pressure in middle ear so that of outside (4 marks)

24. - Thin walls for faster diffusion of gases
- Moist for dissolving gases
- Large surface for maximum diffusion /gaseous exchange
- Highly vascularised to facilitate diffusion (4 marks)

25. (a) A mouse has a larger surface area to volume ratio than the dog; hence losses more energy per unit body weight (2 marks)

(b) Lactic acid (1 mark)

26. (a) X - Denitrifying Bacteria
Y - Animals
Z - Nitrogen fixing bacteria (in soil) (3 marks)

27. Hydrogen and oxygen (1 mark)