30.4 BIOLOGY (231)

30.4.1 Bilogy Paper 1 (231/1)

1. (a) Scales;

   (b) (*Network of*) hyphae (which form mycelia as the vegetative body);
   Carry out sexual and sexual reproduction/most reproduce by means of spores;
   (1 mark)

   Cell wall is made of chitin;
   Reproduction is by means of spores/sporulation/
   some reproduce sexually/budding in yeast; are eucaryotic;
   are heterotrophic/have no chlorophyll/some are saprophytic/some
   are parasitic; some reproduce sexually through conjugation;
   Store food in form of glycogen or oil droplets;
   The first two ***(2 marks)***

2. Food; and shelter
   (2 marks)

3. (a) Magnification of the object/mage; Acc. Magnification alone
   (b) Regulate amount of light (falling on the object on microscope);
   (2 marks)

4. (a) (seed) dormancy:
   (2 marks

   (b) (i) Epigeal;
   (ii) Protection of the (delicate) plumule; pulls the
   cotyledons above the ground;
   (2 marks)

5. (a) (i) Production of plants and animals that have greater
   Productivity/have beneficial characteristics than either
   of the parents. ***(1 mark)***
   (ii) Condition in which an individual has more than
   two sets of chromosomes; ***(1 mark)***

   (b)
   - Radiation such as alpha, gamma, beta and UV light, X-rays;
   - Increase in temperature;
   - Chemicals such as colchicines/ phenols/ pesticides;
   - Heavy metals such as lead/ mercury;
   - Viruses such as papilloma;
   - Mustard gas for gene mutation; (The first two) ***(2 marks)***

6. (a) (i) Dicotyledonae; ***(1 mark)***

   (ii) Vascular bundles arranged in a ring/
   Presence of vascular cambium ***(1 mark)***

   (b) (Divide to give rise to) secondary thickening/increase the
   girth /width/Secondary growth;
   Give rise to additional xylem and phloem tissue; ***(1 mark)***

7. (a) (Site) Protein synthesis;
   (b) Break down worn out cells/organelles/food materials; ***(2 marks)***

8 (a) The placenta; takes the role of the ovary of producing the hormone progresterone; (which maintains pregnancy) *(2 marks)*

(b) Production of sperms; male gametes/male sex cells/male sex cells;
Production of testosterone hormone/androgens/male sex hormones;
Any two *(2 marks)*

9 (a) (i) *Salmonella typhi;*
(ii) *Entamoeba histolytica;* *(2 marks)*

(b) Malaria; *(1 mark)*

10. (a) (i) Vestigial structures are those structures that have ceased to be functional over a long period of time and hence reduced in size; *(1 mark)*
(ii) Appendix/coccyx/nictating membrane/ceacum/body hair/ear muscles/semilunar fold of the eye/cornea. *(1 mark)*

(b) Disease causing organism mutate; and become resistant; *(2 marks)*

11. (a) The auxillary buds will sprout/lateral buds will sprout/lateral branches will be formed; *(1 mark)*

(b) Decapitation removes the hormone auxins /IAA which is produced in terminal bud/the stem tip ;
absence/removal of the hormone promotes branching/ development of auxillary/lateral buds; *(2 marks)*

12. (a) Scapula/shoulder bone/shoulder blade: *(1 mark)*
(b) (i) Humerus; *(1 mark)*
(ii) Ball and socket joint; *(1 mark)*
(c) Attachment of muscles; *(1 mark)*

13. (a) In diffusion molecules move from a highly concentrated region to a lowly concentrated region while in active transport molecules move from a lowly concentrated region to a highly concentrated region; No energy is required in diffusion while energy is required in active transport; No carrier molecules are required in diffusion while carrier molecules are required in active transport; *(2 marks)*

(b) (i) Plants – absorption of water from the soil by root hairs/ Movement of water between plant cells/opening and Closing of stomata/support due to turgidity/feeding in insectivorous plants; *(1 mark)*

(ii) Animals – reabsorption of water by blood capillaries from renal tubules;/absorption of water in the alimentary canal/colon/gut/large intestine;
Movement of water from cell to cell/in and out of cells;
(The first one) *(1 mark)*

14. Parenchyma/collenchyma; *(1 mark)*

15. Cytoplasmic streaming; *(1 mark)*

16. (a) Tracheole; *(1 mark)*

(b) Moist for gases to dissolve (in solution); branched/many/ numerous tubes to increase surface area (for gaseous exchange); thin for fast diffusion; (any two) *(1 mark)*

17. Waste products are mainly made from carbohydrates and hence not as harmful as proteineous materials; waste products are formed slowly; Non-toxic forms/waste products accumulate slowly/ plants are less active;
Some waste products (such as oxygen or carbon IV oxide) are re-usable/re-cycled;
Some waste products (such as resins and gums) are stored in in-soluble form in (dead) tissues; or in living tissues as fruits, leaves and bark;
Some of the waste like some gases are removed by simple diffusion; *(4 marks)*

18 (a) Rate of photosynthesis increased as the Carbon (iv) Oxide concentration increases up to optimum level (and vice versa); until it stops.

(b) Rate of photosynthesis increases as the light intensity increases up to optimum level (and vice versa);
- decreases until it stops *(1 mark)*

19. (a) Kill organisms in water; reduce amount of oxygen in the water; reduce the quality of water for (human) consumption/change water P^H; interferes with the food chain/trophic levels;
leads to entrophication/ algal bloom;
causes water borne diseases/cholera/typhoid/amoebic dysentry;
(The first three) *(3 marks)*

(b) Respiration/defecation/excretion; *(1 mark)*

20. Belt transect;
Line transect; *(2 marks)*

21. Pancrease releases glucagon; hence glycogen is converted to glucose;
Fat is converted to glucose; reduced rate of respiration; .....*(4 marks)*

22. Slide past each other/scissor-like for shearing/cutting/slicing (off) fresh skin/tendon/from bones; large/powerful for breaking/cracking/ crushing bones; *(2 marks)*

23. A component of haemoglobin; *(1 mark)*

24 (a) Age-young people are actively growing hence require more energy than older people;

(b) Occupation – manual workers require more energy than sedentary workers;

(c) Sex – males are more muscular hence require more energy than females; *(4 marks)*

25. Thin walled for easy diffusion of gases;
Have large airspaces/store a lot of air which makes the plant buoyant/ for gaseous exchange; *(2 marks)*

26. Inner membrane is highly folded/have cristae to prqvide a large surface area;
for attachment of enzymes; *(2 marks)*

27 Baking; brewing; processing of dairy products; e.g Cheese, yoghurt, sour milk,
production of organic acid; e.g oxalic, citric,vinegar, butyric acid; *(2 marsk)*

28. (a)

Arteries	**Veins**
Thick muscular walls	Thin muscular walls;
No valves	Valves present;
Narrow lumen	Wide lumen;

(3 marks)

(b) Arteriosclerosis; *(1 mark)*

29. (When humidity is high the air around the leaf gets saturated with water vapour hence) less space for water vapour from the leaf to occupy/low saturation deficit/low diffusion gradient; *(1 mark)*

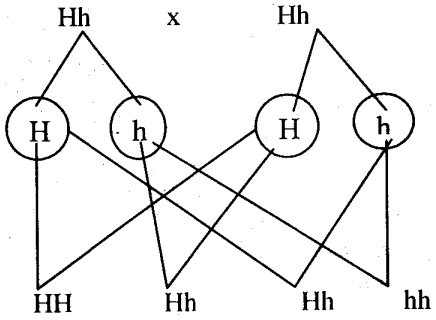
30.4.2 Biology Paper 2 (231/2)

1.0 (a) (i) Parents genotype HH; hh; *(2 marks)*
(ii) Hh; *(1 mark)*

(b) F_1 selfed
(Parental genotypes) Hh x Hh ;

(Gametes) H h H h ;

(Fertilization) ;



(3 purple)
(1 white)
(4 marks)

(c) The gene for purple colour is dorminant while the gene for white colour is recessive;

2. (a) Herbivorous: *(1 mark)*

(b (i) Tooth J is narrow/sharp/chisel like
while tooth L is broad/ridged/has cusps;
J has one root while L has 2/3/4 roots ; *(1mark)*
(ii) Tooth J is used for cutting/biting
while tooth L is used for grindingcrushing/chewing; *(1 mark)*

(c) (i) Diastema;
(ii) For manipulation of food by the tongue; *(1mark)*

(d) Calcium phosphate; *(1 mark)*