Atika School
Free Online Academy

231/1

MARKING SCHEME

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

16	17	18	19	20	21	22	23	24	25

GRAND SCORE	

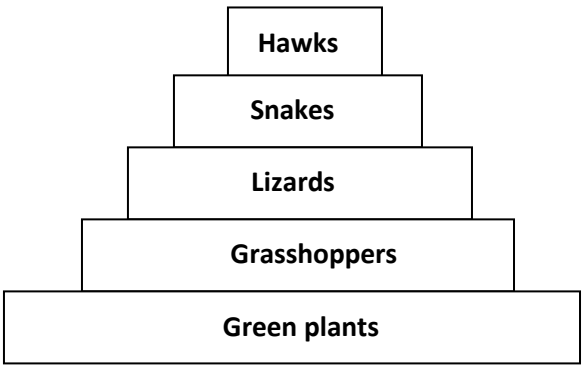
1. (a) Acquired characteristics (1mk);
   (b) Lamarck's theory/Lamarckism/Theory of use and disuse. (1mk);
   (c) Acquired characteristics are not passed to offspring's (1mk);
   This is because acquired characteristics do not affect genes. (1mk);

2. (a) Ostium. (1mk)
   (b) (i) Apical meristem. (1mk)
   (ii) Cambium (meristem) (1mk)

3. (a) Potato cylinder in a test tube A/distilled water; (1mk) water molecules moved into the potato cylinder by osmosis; (1mk)
   (b) Water; (1mk)
   (c) Osmosis (1mk)

4. (a) Allows light to pass through (1/2mk); making it easy to observe the tissue (1/2mk);
   (b) To maintain turgidity (1/2mk); and hence shape of the cell (as they await to be viewed) (1/2mk);
5. a) Salivary amylase works in an alkaline medium/pH; the stomach is acidic;
   (b) Trypsin; Lipase; Amylase;
6. a) X-seminal vesicle (1mk) b) Urine/semen fluids (1mk)

7. (a)



(2mks)

   (b) - Grasshoppers will increase; (1mk)
   - Snakes will decrease; (1mk)

8. (a) U – Ventricle (1mk);
   V – Atrium (1mk);
   (b) Low pressure system since blood is only pumped once; hence low rate of distribution of oxygen and nutrients to tissues (1mk);

9. a) Guttation- water oozes out through the leaves
   b) Root pressure- a cut stem exudes copious quantities of water due active pumping of water from the roots

10. a) An earthworm has numerous transverse ring-like segmentations on its body surface; a roundworm shows no such segmentation either externally or internally. (1mks) b) Earthworm: phylum- annelida (1mks)
   Rounworm: phylum-nematoda (1mks)

11. a) Some oxygen inhaled is used in respiration and carbon (IV) oxide is released. (1mk);
b) i) Gill (1mk); Rej. Gills
ii) - Numerous/many to increase surface area for gaseous exchange (1mk);
-Thin wall/has thin wall/membrane/epithelium for faster diffusion of gases. (1mk);
- Moist for dissolving gases (1mk);
- Highly vascularized to facilitate diffusion/has capillaries to carry oxygen from gill filaments and bring in carbon (IV) oxide to gill filaments for removal. (1mk); (Any one)

12. a) guard cells have chloroplasts with chlorophyll, thinner outer walls and thicker inner walls, bean shaped. (1mk); b) aerenchyma tissue has large air spaces to store air for gaseous exchange. (1mk);

13. (a) A rat has a larger surface area to volume ratio than a sheep. (1mk); hence loses more energy per unit body weight/mouse loses heat faster than a goat. (1mk);
Acc. A mouse has a larger surface area to volume ratio; hence loses more energy per unit body weight.

b) provides site for respiration (1mk) 14.

(a) Motor neurone. (1mk);
(b) Cell body is at one end. (1mk);
(c) Secrete myelin sheath. (1mk);
(d)

CO^2 *produced* 102

15. (a) 0.7 (1mk);
O_2 *consumed* 145
(b) Fats (1mk);

16. (a) Root. (1mk);
(b) Presence of root hairs. (1mk);
(c) Xylem. (1mk);
(d) Lignin. (1mk);

17. (a) Reducing sugar test. (1mk);
(b) When the mixture of urine and Benedict solution is heated the colour of the mixture turns from blue to green - to yellow – to orange/brown/ red. (1mk); indicating the presence of reducing sugar (1mk);

18. (a) Scapula. (1mk);
(b) Spine. (1mk);
(c) Humerus. (1mk);
(d) Has the glenoid cavity which articulates with the head of the humerus (1mk);
Has a spine for attachment of muscles (1mk); is broad/has a large surface

area for the attachment of the shoulder muscles. (1mk) (Any one)

19. i) Rough endoplasmic reticulum (1mk); Acc. Rough ER.
ii) Ribosomes (1mk); site of protein synthesis (1mk);

20. a) Structure of living things- Anatomy (1mk);

b) Body functions- physiology (1mk);

21. fossil records or paleontology; geographical distribution if organisms; comparative anatomy; cell bilogy; comparative serology; comparative embryology; (2mks) (any two)

22. a) parental genotypes- **RR** and **WW** (1mk);

b) Parental phenotype Red flowered x White flowered

Parental genotype RR x WW

Gametes

c) phenotypic ratio of F_2 plants- 1:2:1; 1 Red flowered: 2 Pink flowered: 1 White flowered (1mk);
d) Abo- blood grouping or blood groups (1mk);

23. a) Ear ossicles- Amplifys and transmits vibrations from the tympanic membrane in the middle ear to oval window. (1mk);

(b) cochlea- vibrations stimulate the sensory hairs to generate nerve impulses which are transmitted to the brain.

24. a) Epicotyl; (1mark)
(b) It enables the seedling to be firmly anchored in the ground; (1marks)
- It enables the seedling to obtain water and mineral salts; (1marks) 25.

a)- Catalase; (1mk);
b)-Liver; (1mk);
c) Breakdown of toxic hydrogen peroxide into harmless products/water and Oxygen (1mk);

26. a) Photolyis to provide hydrogen atoms required in the dark stage of photosynthesis;
Synthesis of more/additional ATP required in the dark stage of photosynthesis; (2mks)
b) Starch is insoluble /osmotically inactive (hence does not affect the osmotic pressure of plant cells) (1mk)

27. (a) Sclerenchyma; (1mk)
(b) thickened with lignin;
Has tapered ends (tracheids); (2mks)