

SCHOOL BASED FORM FOUR EXAMINATION JULY/AUG 2017

**Biology 231/1
Marking Scheme**

1. i) Exoskeleton; Rej. External skeleton
ii) Endoskeleton; Rej Internal skeleton
2. Chordata;
3. Have large and numerous air spaces;
Hence facilitation buoyancy;
- 4.a) nucleous;
b) nuclear membrane/pore; Acc. Tonoplast
c) lysosomes;
- 5.a) Motor neurone; It cells body is situated at one end of the axion;
b) Transmittes impulses from the CNs to the effector organs;
- 6) - Sieve tubes have perforated cross walls to allow passage of materials;
- Companion cells supply energy to the sieve tubes for translocation;
- They have cytoplasmic strands to facilitate movement of translocated materials;
- Presence of plasmodesmata to allow lateral movement of materials;
- 7.a)i) - are those structures that have ceased to be functional over along period of time and hence reduced in sizes;
ii) - Appendix;
- Caecum;
- Coccyx or tail/ tail bone; body hair;
- b) Disease causing organism mutates; pass gene to offspring through reproduction; become resistant;
- 8.a) Submandibular/ submaxillary; sublingual;
b) Lubricate food; soften food; moisten food; dissolves food; provide alkaline medium; Mark the first 2
9. a) Catalyses the breakdown of toxic hydrogen peroxide; to harmless water and oxygen (in active tissues);
b) Very low temperature;
10. a) Repiration;
b) Remove/ absorbs CO₂ from atmospheric air;
c) L – lime water remains clear because carbon (IV) oxide has been removed;
N – lime water forms white precipitate because the respiring germinating peas produces carbon (IV) Oxide;
- Rej: milky/ cloudy
11. Diabetes mellitus – the pancrease is unable to produce adequate amount of insulin this lead to very high level of glucose in blood above normal result to glucosyria;
Diabetes insipidus – the pituitary gland is unable to produce adequate amount of ADH this leads to the production of large amounts of dilute urine (dieresis); (mark as whole)
- 12.i) Study of different species of organisms interacting among themselves within a community;
ii) The maximum number of organism an area can comfortably support without depletion of the available resources;
iii) The members of a given species in a particular habitat;
13. Lead to accumulation of moisture in substomatal air spaces leading to low diffusion gradient; thus reducing transpiration rate;
14. a) The smaller an organism is the higher is its surface area to volume ratio; vice versa is correct.
b) K;
c) Smaller organism have a considerably higher surface area to volume ratio than larger ones thus diffusion along is sufficient to transport materials in and out of the organism;
15. - Bodies are covered with feathers for insulation and flight;
- They have beaks;
- They have hollow bones;
- They lay yolk eggs with calcareous shells;
- 16.a) - Scapular;

- Humerus;
- ii) Ball and socket joints;
- c) - Have large surface; for the attachment of muscles (that move the arm); (mark as a whole)
- 17. Desert mammal Fresh water fish
 - Few - Many;
 - Small glomeruli - large glomeruli;
- 18. - Is highly vascularised to supply the eye with oxygen and nutrients;
- Pigmented enabling it to absorb scattered light thus reducing reflection within the eye;
- 19. Magnification = $\frac{\text{Drawing length}}{\text{Objective length}}$

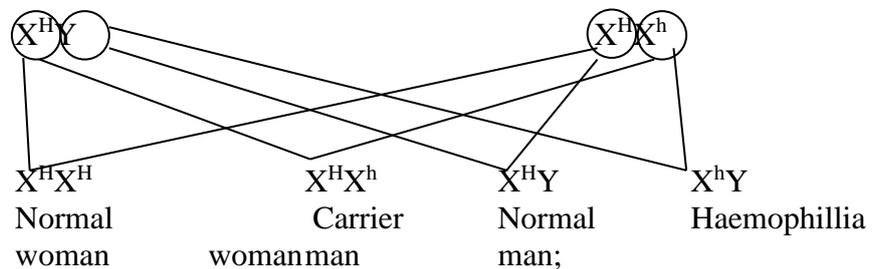
$$\frac{= 5}{10}$$

$$= \times 0.5;$$

Rej - if X is not there

- If units are indicated

20. Parental phenotype – Normal man Carrier woman
 Parental genotype X^HY X X^HX^h



21. a) Avoid collapse of trachea during breathing movement/ keep trachea open throughout for passage of air;
- b) For maximum diffusion of gases/ maximum gaseous exchange;
22. i) Intermittent (growth) curve;
- ii) P – Q
 - Shed off exoskeleton/ moulting/ ecdysis;
- Q – R
 - Hardening of exoskeleton/ formation of exoskeleton;
23. a) Storage of sperms;
- b) Produces a clear alkaline fluid which neutralises acidity of urethra;
- c) Enclose testes loosely;
 It hangs testis outside body providing optimum temperature for spermatogenesis;
24. Control learning and intelligence;
 - Control voluntary body movements;
25. - Production of alcoholic drinks;
 - Baking;
 - Processing of dairy products eg. Cheese and yoghurt;
 Rej. Brewing alone.
26. - Light intensity decreases with increase in depth;
 - Oxygen concentration decreases with increase in depth;
 - Water temperature decreases with increase in depth;
 - Carbon (iv) oxide concentration decrease with depth hence lowering productivity;
27. - Immature embryo/ not yet fully developed;
 - Presence of chemical inhibitors that inhibit germination in seeds; Acc correct example abscisic.
 - Impermeable seed coats to air and water;(Rej. Impermeable seed coat alone)
 - Presence of germination inhibitors;
28. a) - Osmosis;
 - Antidiuretic hormone; Acc vasopressin.

Rej.ADH.

- b) Urea;
- Uric acid;
- Ammonia;