**PAVEMENT FORM 4 TRIAL 2 EXAMINATION 2021/2022**

**Kenya certificate of secondary education (K.C.S.E)**

**BIOLOGY PAPER ONE MARKING SCHEME**

1. Genetics;
2. Reproduction, Movement and locomotion, Growth and development, Irritability
3. (i)Pit fall trap;

(ii) Trap into which small crawling animals fall and get trapped;

a) Guttation

b) Guttation is the process by which plants loose water in form of droplets through hydathodes while transpiration is the loss of water in form of water vapour through stomata

5.(a) 8 chromosomes (b) 24 chromosomes

6. (a) Fossils are past materials/ remains of ancestral forms of organisms that were accidentally preserved in naturally occurring materials; (OWTTE)

 (b) – Only partial preservation was possible due to soft parts decayed;

 - Distortion during sedimentation;

- A subsequent geological activities (erosion, earthquakes, faulting) destroyed some fossils;

7. (a) Leukemia (b) Sickle Cell Anaemia

8. a) Provides acidic medium for enzyme pepsin;

* Activates pepsinogen (inactive) to pepsin active);
* Kills pathogenic micro – organism swallowed in food/ antiseptic;

b) Oxyntic/Parietal cells;

9. (i) **Entamoeba** **histolytica**;

 (ii) **Schistosoma** **spp;** acc. Specific species

10. - Swallow plenty of sea water to increase amount of water in the body

* Have chloride secretory cells in their gills to remove excess salts;
* Eliminates nitrogenous waste in form of trimethylamine oxide which requires little water for elimination;
* Few/small glomeruli thus slow filtration rate in the kidneys; (*any 3*)

11. (i) Primary consumers; √ (ii) Secondary consumers; √

12. a) Respiration

 b) Glycolysis

13. a) Lenticel

 b) Hand lens/Magnifying lens

14. Pulmonary artery

15. (a) Plasmodium species//Plasmodium vivax//Plasmodium malariae//Plasmodium ovale//Plasmodium falciparum

(b) Red blood cells//Erythrocytes.

(c) Fish feeding on the larvae;

16.(a) Rough //sticky to stick onto the body of the insect;

 (b) Occur inside the flower ensuring that the insects brush against them as they look for nectar;// Sticky so that pollen grains from the body of an insect stick onto it; any 1

17. (a) Water pollution;

(b) Oil soaks the feathers hindering locomotion;

 Birds remove oil using their beaks swallowing some of the oil causing poisoning;

18. (a) Positive Chemotropism;

 (b) Negative Phototaxis;

19. Cell division;//Growth;//respiation

20.Length of one cell= Diameter of field of view in um ; 6000 um = 1000um;

 Number of cells 6

21.Dissolve food substances//soften testa//hydrolyze food substances//activate enzyme any 2

22.Hybrid vigour; Causes variations;

23. Segmented body;

Jointed appendages;

Presence of exoskeleton;

(b)Blocks the spiracles and thus no inhalation;

24. Formation of new species;

Elimination of undesirable characteristics;

25. Tip has a higher concentration of auxins; when the tip of shoot is removed auxin concentration is lowered; less auxin concentration stimulates sprouting of lateral btranches;

26. a) Motor neurone; transmit nerve impulses from central nervous system to the effectors;

(b) Cerebrum;

27. Radial muscles of the iris contract, circular muscles relax; and pupil enlarges this allows more light for perception of objects;

28. The auxins migrate to the dark side; and cannot diffuse downwards due to the blade; hence no curvature

29 Terrestrial - Uric acid

 Fresh water -Ammonia;

 Marine - Trimethylamine oxide

30. (a) Sertoli cells – nourishment of spermatids/ immature sperms/ sperm cell / spermatozoa;

(b) Epidydimis – site for temporary storage of sperm cells / contracts to allow ejaculation of

sperms;

 (c) Seminiferous tubule – site for spermatogenesis/ sperm synthesis/ sperm formation;

31. (a) Mutation I – Deletion;

 Mutation II – Inversion;

 (b) Gene mutation – changes in the sequence of nucleotide in a DNA sequence;

 Chromosomal mutation – changes in chromosome structure or number;