

# KANDARA SUB-COUNTY FORM 3 JOINT EVALUATION

Kenya Certificate of Secondary Education

## BIOLOGY

Paper - 231/1

October/November 2016

### Marking Scheme

1. a) Chloroplast.  
b) J - Intergrana.  
K Granum

2. Catching small crawling insects.

3. - Arachnida.  
- Crustacea

4. <u>Plantae</u>	<u>Fungi</u>
- Contains chlorophyll hence photosynthetic / are Autotrophic.	- Doesn't contain chlorophyll hence non-photosynthetic are heterotrophic
- Cell wall made of cellulose	- cell wall mainly made of chitin
- Store excess food in form of starch.	- store excess food in form of glycogen
- Body differentiated into roots, stem and leaves	- Body mainly made of mycelium

5.a) Inactivate enzymes thus lowering rate of enzyme activity.

- b) - Presence of enzyme inhibitors;  
- Extreme pH;  
- Lowering substrate concentration ; / Enzyme concentration.

6. a) Oxytocin  
b) Follicle stimulating hormone;

7. a) Ciliated columnar epithelial tissue;  
b) Aid in movement of material or substances.  
c) Fallopian tube / oviduct;  
- Trachea;

8. a) Ultrafiltration  
b) Selective reabsorption.

9. a) Ribosomes  
b) Centrioles.

10. a) M becomes turgid; bigger; swollen; enlarges in size.  
b) Salt solution M is hypertonic; to the surrounding hence water molecules diffuse by osmosis; from the beaker into the visking tubing.

11. a) Intermittent growth curve.  
b) Moulting / Ecdysis  
c) arthropoda.

12. a) Softening of leather / treatment of hides and skins to leather;  
- Manufacture of ink/ printing of fabrics / dyeing of clothes / printing patterns in pots;  
b) Treatment of Malaria;

13. Feeding relationships.  
- Competition;  
- Diseases and pest;  
- Human activities;

14. a) Vibrio cholerae;  
b) Candida albicans;

15. a) Regulation of body temperatures;  
- Regulation of pH of body fluids;  
- Defence against disease causing micro-organisms \ pathogens;  
- Prevent bleeding / enhance blood clotting;  
b) Coronary thrombosis / varicose veins / arteriosclerosis

16. Light energy is absorbed by chlorophyll; light energy splits water molecules into oxygen gas and hydrogen ions / atoms / photolysis; Adenosine triphosphate is formed;

17. After four months of pregnancy, the ovary stops secreting the hormone progesterone; and the placenta takes over production of the hormone progesterone which maintains pregnancy.

18. B antigen  
Rhesus antigen / Antigen D;
19. a) Anaphase 1;  
b) Homologous chromosomes separates at the equator / homologous chromosomes start migrating to the opposite poles; sister chromatid's attached at the centromeres;  
c) Reduction phase that results in haploid sex cells / gamete cells.
20.  $\text{Na}^+$  - Active transport;  
 $\text{Mg}^{2+}$  - Diffusion
- b) Reduces the rate of active transport due to decreased rate of respiration / oxidation of glucose, hence less energy.
21. a) Lenticels;  
b) At high altitude oxygen concentration is low; thus the rate of breathing is faster to supply tissues with sufficient oxygen;
22. Fixed energy which supports living matter decreases at each successive trophic level; since energy is lost by respiration and indigested materials hence less biomass supported at each level.
23. X - Pyruvate / pyruvic acid W-Lactic acid.  
Z - plants
24. E - Denitrifying bacteria e.g. Pseudomonas denitrificans  
J - Nitrifying bacteria e.g. Nitrobacter.  
b) H - Death or decay or decomposition ; excretion or Ammonification or Putrefaction or Egestion.  
F - Nitrogen fixation by lightning or thunderstorms.  
c) Plants.

- 25.a) i) Oxygen  
ii) Carbon (IV) oxide  
b) Oxyhaemoglobin
26. i) Role of an organisms in its habitat;  
ii) Study of a single / individual species of plants or animals within a community, ecosystem; habitat.
27. The surface area to volume ratio is higher in calves than in adults; hence adults retain more heat than the calves hence need to have other ways to loose heat.  
OR  
Surface area to volume ratio is lower in adults than in calves; hence calves loose more heat than adults;
28. Are prokaryotic;  
Organelles not bound by membrane; Absence of mitochondria; few organelles cell wall mainly made up of murein.
29. a) Excrete excess water.  
b) Long loop of hence; and collecting ducts; small glomeruli; more glomeruli  
c) Vasopressin / antidiuretic hormone reject ADH
30. - Root pressure;  
- Transpiration pull;  
- Cohesive and adhesive forces;  
- Capillarity;
31. - Aids in dispersals  
- Acts as a storage organ;  
- Protects the seeds;