

PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT
GEITA ADVENTIST SECONDARY SCHOOL
FORM FIVE HOLLIDAY PACKAGE 4th MAY 2020
BIOLOGY

INSTRUCTIONS:

Answer all questions

- 1(a) (i) Draw a large, well labeled diagram of a chloroplast in higher plants.
(ii) How is a chloroplast adapted to its function.
- (b) State the roles of lysosomes in organism.
- 2.(a) Define a cell
- (b) State four (4) structural differences between animal and plant cell.
3. The diagram in the figure below represents a transverse section of the cochlea of the mammalian ear.
 - (a) (i) Name the parts P,Q,R,S,T,U,V and W
(ii) Which parts form organs of the Corti?
 - (b) Explain four (4) Characteristics of receptors.
- 4(a) How are xerophytes capable of surviving in their environment.
- (b) Outline different ways in which endotherms respond to cold condition.
- 5(a) Differentiate between insects and Arachnids
- (b) How are insects better adapted to life on land than Arachnids.

6(a) Give three (3) reasons why the efficiency of carbondioxide fixation in C₄ plants is greater than in C₃ plants.

(b) Explain how rise in temperature and increase in light intensity altogether result into photorespiration in C₃ plants.

7.(a) With the aid of a well labeled diagram, describe the structure of the villus

(b) Give five (5) adaptations of the villus for its functions.

8(a) Explain how the loop of heule operates as a counter current multiplier system.

(b) State three kidney disorder in human.

9(a) Define the following terms used in human respiratory system.

(i) Tidal volume

(ii) Vital capacity

(iii) Inspiratory reserve volume

(iv) Expiratory reserve volume

(b) Explain the role of the following components of Haemoglobin in oxygen transport.

(i) Polypeptide (protein group)

(ii) Haem group

(c) Describe how carbon dioxide gas is carried in the blood and then Expelled out of the lungs.

10(a) Define the following terms used in Nutrition.

(i) Autotrophic nutrition

(ii) Saprotrophic nutrition

(iii) Heterotrophic nutrition

(b) John ate rice and fish for his supper describe clearly the digestion processes which took place in John's Digestive system

(c) Explain the hormonal control of the secretion of pancreatic juice.

11. (a) Why a by some is said to be a suicide bag?

(b) Draw and label a cell lacking cell wall as seen under electron microscope

12. (a) illustrate the formation of peptide bond

(b) Why is the molecule formed above act as buffer?

13. State the adaptations of the following organisms

1. Golgi apparatus
2. Cell membrane
3. Mitochondria
4. Chloroplast
5. Nucleus

14. (a) What is allosteric site?

a. Explain how the knowledge of competitive inhibition can be applied in fighting against diseases

15. Sketch the graphs showing the following concepts

1. Competitive inhibition
2. Non – competitive inhibition
3. Effect of temperature on enzyme controlled reaction.
4. Effect of substrate concentration

16. State six functions of carbohydrate with examples

17. (a) What is virus

a. State the dual nature of the following

- i. COVID -19
- ii. Euglena

18. Write an essay on economic importance of kingdom Protocista
19. State the adaptation of it to its mode of life
20. What are the adaptations of the following in its mode of life.
 - i. *Hepatica fasciola*
 - ii. *Taenia solium*
 - iii. *Phytophthora infestans*
 - iv. Mushroom
21. with explain the advantages of kingdom fungi
22. Use a man as an example to outline the taxonomic hierarchy
23. (a) State the properties of nerve impulse
 (b) State the reasons for the sudden influx of sodium ions following stimulation
24. Describe the reflex adjustment of the pupil size when electricity is cut off
25. Describe the mechanisms concerning with maintaining stability of the head from different plane.
26. Use arrows and words within how glucose molecule is oxidized when there is plenty of oxygen.
27. (a) differentiate between alcoholic fermentation and lactic acid fermentation
 - a. When one molecule of glucose is completely oxidized releases a total
 energy of about 2880KJ. And the value of energy in one A.T.P is 30KJ. What will be the efficiency for transfer of energy when two molecule of glucose are completely oxidized
28. (a) What is lean body mass/
 - a. How does the following affect the BMR of an individual
 - i. Body size
 - ii. Health status of an individual

29. What changes will occur when a person get government transfer Dar es salaam (low altitude) to Moshi (a large altitude)
30. (a) What is oxygen dissociation curve?
31. (a) Describe the structure of columnar epithelium
 - (b) Tabulate the location and role of the following tissues.
 - i. Columnar epithelium
 - ii. Cobondal epithehum
 - iii. Stratified epithelium
32. (a) Differentiate between cyclic and non cyclic photophosphorylation.
 - i. Using illustration ONLY show the events of light dependent reactions
33. (a) What is the role of the following
 - i. NADP
 - ii. Pep case
 - iii. Malute shunt
 - iv. Regeneration of cas acceptor
 - v. How light intensive affect photosynthesis
 - (b) Outline three factors affect the affinity to oxygen.
 - (c) Draw the graph showing oxygen dissociation curve between the fatal HB and maternal HB.
34. Describe the mechanism of gaseous exchange across the alveolus
35. (a) What osmotic problem faced by the following organism
 - a. Marine elasmobiandies
 - b. Freshwater bony fish
36. (a) What is negative feedback mechanism?

(b) For the normal finalizing of the body the level of blood sugar does not fall or rise negative feedback mechanism explain this phenomena

3. How does human being overcome the problem of overheating during the day or night.

37. What will response will be the body when you have taken little water very salt meal and too much sweating occurs.

38. Use diagram only show the mechanism of oxirithine cycle.

39. What are the significance of the following in homeostasis
