S5 BIOLOGY ACTIVITIES

1) With examples, differentiate between prevalence and incidence. (2 marks)

2) Name any four characteristics of Fungi. **(4 marks)**

3) a) Describe the structure of Mitochondria. **(2 marks)**
b) What are functions of Mitochondria? **(2 marks)**

4) The amoeba is single celled organism that lives in water. Describe how amoeba engulfs particles of food by endocytosis **(2 marks)**

5) Explain why HIV virus has such devastating effects on our body's ability to fight diseases. **(2 marks)**

6) a) Describe the roles of carrier proteins in active transport. **(2 marks)**
b) Explain why the carrier proteins used for facilitated diffusion have a variety of different shape **(1 mark)**

7) a) Maltose is a dissacharide and glucose is a monosaccharide. Describe one similarity they have in common **(2 marks)**

b) Athletes are given glucose instead of maltose. Give reasons why? **(2 marks)**

8) a) Mature people who have stopped growing still need proteins in their diet. Explain why? **(2 marks)**

b) An adult man needs about 60 g of proteins per day. Why does he gain nothing if he eats more than this? (**2 marks)**

9) Suggest why mRNA is less stable than DNA, and why is this a necessary feature of mRNA. **(4 marks)**

10) Hormones and Enzymes are similar in that they are both effective in very small amounts and they are not consumed in the metabolic processes they affect. Suggest how Hormones and Enzymes differ. **(4 marks)**

11) a) Define the term Locomotion. **(1 mark)**

b) What is the basic reason for the fact that animals show locomotion whereas plants do not. **(3 marks)**

12) a) What would happen to the activity of the intestinal enzymes if the PH in the duodenum remains at 2? **(2 marks)**

b) Why is it necessary for enzyme Pepsin to be secreted in inactive form? **(2 marks)**

13) Briefly explain the roles of each of the following in mammalian locomotion.

a) Ligament **(2 marks)**
b) Tendon **(2 marks)**
c) Bones **(2 marks)**

14) a) Explain why an enzyme which catalyses the conversion of Protein into maltose is unable to catalyse the conversion of Protein into amino acids. **(2 marks)**

b) Explain why enzymes are so specific in the reaction that they catalyse. **(2 marks)**

c) Suggest why all enzymes are protein molecules. **(2 marks)**

15) a) Define the term biotechnology. **(2 marks)**

b) State two advantages of treating diabetes with insulin produced by gene technology. **(2 marks)**

16) a) Plasmodium falciparum is the causative agent of the most form of Malaria. It is distributed throughout the tropics. Explain why Malaria is restricted to the tropics. **(2 marks)**

b) Explain why it is has proved difficult to develop a vaccine for malaria. **(4 marks)**

17) Suggest why it is difficult to decide whether Viruses are living organisms. **(4 marks)**

18) This question is about cell division.

Complete the table below by putting a tick in the correct column.

(5 marks)

No	**Feature**	**Type of cell division**	
		Meiosis	**Mitosis**
1	Changes take place in the Nucleus	√	√
2	Produces gametes		
3	Produces daughter cells with identical chromosomes		
4	Half chromosomes are passed to each daughter cell		
5	Homologous chromosomes are randomly assorted into daughter cells		
6	Mutations can occur to change the genetic code		

19) Write an account of the cell cycle, involving a mitotic nuclear division, highlighting the events occurring in each stage. **(10 marks)**

20) Give differences and similarities between DNA and RNA Molecules.

(10 marks)

21) Describe the various biological functions of water to plants and animals

(10arks)

22) Plants reproduce both sexually and asexually. Discuss the advantages and disadvantages of both processes to plants. **(10 marks)**

23) a) Define the term Enzyme **(2 marks)**

b) What are characteristics of enzymes? **(6 marks)**

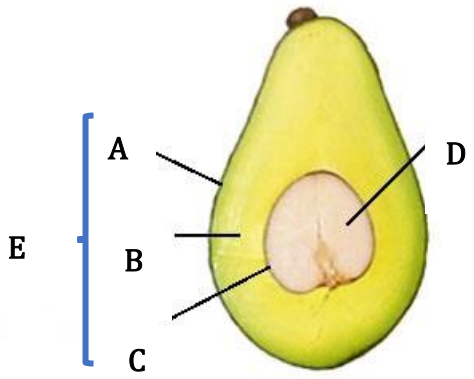
c) How enzymes differ from catalysts? **(2 marks)**

24) a) Cholera bacteria release the toxin, choleragen, when they are in the intestine.

b) What name is given to the bacterium that is the pathogen of cholera? [1]

Describe the way in which cholera is transmitted from an infected person to an uninfected person.

25) Use the diagram below to answer the questions that follow;



a) Suggest the type of fruit in the figure above.

b) What is the reason for your answer in (a) above?

c) Name the parts labeled A, B, C, D, and E.

26) Differentiate between pollination and fertilization.

27) Briefly explain why a seed may remain dormant even when the environmental conditions are favorable for germination.

28) Explain why the relationship between a bee and a flower is described as a mutualistic one.

29) Describe the lifecycle of *Plasmodium vivax*.

30) a) Differentiate between universal media from selective media.

b) Describe the principles involved in sterilizing cultures.

31) a) What is a culture medium?

b) Describe two forms of culture media and their significance.

32) With aid of a graph, discuss the four stages involved in growth of bacteria population.

33) Discuss the benefits of microbiology.