HOLIDAY PACKAGE

Class: S5 PCB- MCB

INSRTUCTIONS: Attempt all questions

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1. Complete each statement by writing the correct term or phrase in the space provided. **(6 marks)**
   (a) The only domain that includes multicellular organism is .....
   (b) The two kingdoms in which all members are heterotrophs are ..... and .....
   (c) The naming system developed by Linnaeus is called .....
   (d) One genus can include several.....
   (e) The kingdom .....have cell with cell walls made of peptidoglycan.

2. **Answer as true or false 5Marks**

i. Abiotic factors are the non-living physical aspects of the environment.

ii. Capture –recapture is a method used to integrate the numbers of mobile animals in a particular place

iii. A correlation coefficient of 0 means that there is no correlation at all.

iv. A sample is a portion, piece, or segment that is representative of a whole area of study.

v. In the Simpson's index, N represents the total number of organisms of a particular species

1B. **Choose the best answer 4Marks**

i. Which organelle converts the chemical energy in food into a form that cells can use?

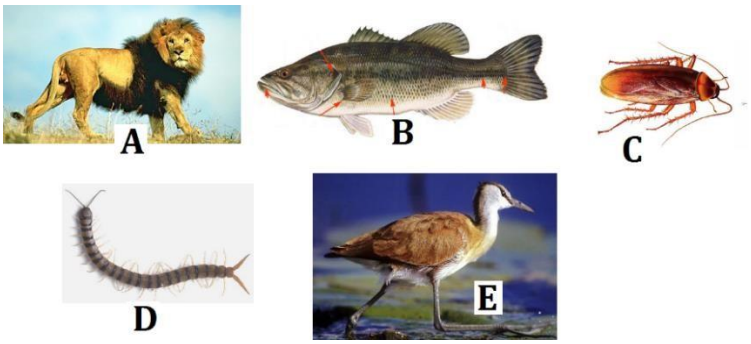
a. Chromosome b. Chloroplast c. Nucleus d. Mitochondrion

ii. The cell membranes are constructed mainly of:

a. Carbohydrate gates b. Protein pumps c. Lipid bilayer d. Free-moving proteins

4. a a. What do you understand by the term biodiversity? **1Marks**
   b. What do you think would happen to plants if there were no insects? **2Marks**
   c. Suggest different ways to conserve our forests. **2Marks**

5. Look carefully the specimen below:



a) To which kingdom do the following organisms belong? **/2mks**
b. Make a dichotomous key for these animal specimen. **/5mks**

6. A student has randomly collected 5 types of species at the following frequencies. **5Marks**

SPECIES	A	B	C	D	E	
FREQUENCY	2	6	3	4	2	

Calculate the Simpson's diversity index of this community

7.A team of students conducted the capture- recapture sampling method of tilapia from lake Muhazi at different times of the day as recorded in the data below:

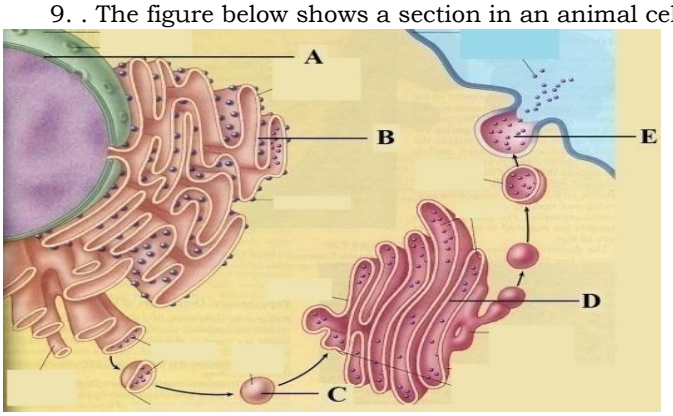
Time/hours	12:00	15:00	18:00	21:00	00:00	03:00	06:00	09:00
Number of fish	24	12	8	2	1	4	6	24

a. Plot the graph for the date provided and describe the shape of the graph. **3Marks**

b. From the graph, determine the appropriate time to have the most catch. **2Marks**

8. Describe how diversity is threatened by climate change and human activities. **3Marks**

9. . The figure below shows a section in an animal cell



a. What are the organelles represented by the letters A, B, C and D? **/4mks**

b. What is the functional relationship between the organelles B, C and D? **/3mks**

c. In which organelle is DNA located in the cell? **/1mk**

d. Which other organelles are found in eukaryotic cells and contain DNA? **/2mks**

10. A. What is meant by the term virus? **2Marks**

B. State the main components of a virus. **2Marks**

C. Describe the two ways how viruses cause an infection **2Marks**

D. Differentiate between a bacteriophage and a retrovirus? **2Marks**

E. Do you think viruses should be considered as a form of life? Give reasons for your answer. **2Marks**

11. What is microscope? **1Marks**

i. Calculate the magnification of an image with 50mm, and the object measuring 5µm. in length. **2Marks**

ii. If a nucleus measures 100mm on a micrograph, with a magnification of X10 000, what is the actual size of the nucleus? **2Marks**

iii. Suggest a reason why it is not advisable to clean the objective and eye piece lens with a wet cloth or towel? **1Marks**

12. a .What is meant by the fluid mosaic model of the cell membrane? **2Marks**

b. State at least three properties of the cell membrane. **3Marks**

c. Describe at least 2 types of the proteins in the cell membrane and their roles. **2Marks**

d. What is a partially permeable membrane? **2Marks**

e. What do the words hydrophilic and hydrophobic mean? **2Marks**

f. What is the difference between rough and smooth endoplasmic reticulum? **2Marks**

13. a. Differentiate between Collenchyma and sclerenchyma **2Marks**

b. State the main structures (components) that make up a xylem and phloem tissues. **2Marks**

c. Explain how the structure of Parenchyma and Xylem tissues are suitable to their functions. **2Marks**

14. Describe how epithelial tissues have adapted to their functions **2Marks**

15. Outline characteristics features of the following kingdom: **4Marks**

a. Protoctist

b. fungic . Plantae

d. Animalia

14. A substance x was heated with dilute hydrochloric acid and cooled. The same amount of sodium hydroxide (NaOH) was added to the acid. The mixture was heated with Benedict's solution. An orange red brown colour was formed

a) What is substance x? **2Marks**

b) Outline how colours changed from the original colour to orange or red. **2Marks**

a) Why was the temperature kept at 37^0c? **2Marks**

d) explain the function of HCl used in experiment above? **2Mark**

e) what is necessary to use NaOH in experiment above? **2Marks**

Hard work bright the future!!