

EXERCICES OF BIOLOGY S4 PCB AND MCB

- 1) Differentiate between ecological niche and habitat.
- 2) A student collected 16 butterflies which he marked and released. For a second time he collected 18 butterflies among which 1 were already marked from the first sampling. Estimate the population size of butterflies in that area.
- 3) 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	9:00
Number of fish	24	12	8	2	1	4	6	24

- a) Plot the graph for the data provided and describe the shape of the graph.
- b) From the graph, determine the appropriate time to have the most catch.
- 4) Describe how diversity is threatened by climate change and human activities.
- 5) An African bush elephant belongs to order Proboscidea and family Elephantidae. Its scientific name is *Loxodonta africana*.
 - a. Make a table indicating the hierarchy classification of African bush elephant.
 - b. Use the examples from the classification to define the term taxon.
- 6) Describe the system of naming species that Linnaeus developed.
- 7) Complete the table below.

Parts of microscope	Functions
.....	Rotates to allow use of different power objectives
Coarse focus adjustment
.....	Focus and magnifies light coming through the slide
Eye piece/ ocular lens

- 8) What is the importance of a light microscope?
- 9) The following set of data shows the effect of temperature on the completion time of an enzyme reaction.

Temperature/ $^{\circ}\text{C}$	0.0	15	25	35	45	55	65
Rate of reaction/ min^{-1}	0.00	0.07	0.12	0.25	0.50	0.28	0.00

- a. Plot the data on graph.
- b. What the optimum temperature of this reaction?
- c. Describe the shape of the graph between 10 and 40 $^{\circ}\text{C}$.
- d. Calculate the rate of increase between 20 and 30 $^{\circ}\text{C}$.

10) Copy the table and complete the missing parts.

Kingdom	Features
Prokaryotae
.....	Eukaryotic, single celled, some animal like, some plant like
Fungi
.....	Multicellular, eukaryotic, autotrophic, have cellulose cell wall
.....

11) i) What is a tissue?

ii) Give 2 examples of a tissue you would find in a human body

iii) What is the difference between an organ and a tissue?

12) a) Name two types of plant cell in which chloroplasts can be found.

c) Describe three ways in which a leaf is adapted to photosynthesis.

13) During the experiment in biological laboratory, a student uses microscopy.

Copy the table and complete it about magnification and where it is possible.

Number on objective lenses	Number on ocular lenses	Magnification
10 X	10 X	
40 X		
100 X		
150 X		