

**THE UNITED REPUBLIC OF TANZANIA
PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT
NJOMBE REGION**



FORM SIX PRE-MOCK EXAMINATION

133/1

BIOLOGY 1

(For Both School and Private Candidate)

Time 3 Hours

August 2024

Instructions

1. This paper consist of section A and B with a total of ten questions.
2. Answer all questions in section A and two question from section B.
3. Section A carries 70 marks and section B carries thirty (30)marks.
4. All writing must be in blue or black ink, except drawings which must be in pencil.
5. Any unauthorized materials are not allowed in the examination room.
6. Write your examination number on every page of your answer booklets.

SECTION A (70 MARKS)

1. (a) Singer and Nicolson proposed the fluid mosaic model of membrane structure as dynamic in nature. What does dynamic imply in this context? 2points.
(b) The nucleus is the largest organelle within the eukaryotic cell, being large it is easily observed by light microscope. Suggest exceptional cells lacking and cells having more than one nuclei. 2points each.
2. Enzymes are biological catalyst, they speed up the rate of a chemical reaction without itself being changed at the end of the reaction. In what ways do industrial catalysts differs from biological catalyst? 5points.
3. (a) Gaseous exchange in lungs occurs at the alveoli. Using five points suggest the structural adaptation of alveoli which make them efficient for gaseous exchange?.
(five (5) points)
(b) It has been calculated that 1g glucose combine with 77cm^3 oxygen releasing 15.8KJ heat, and 1g long chain fatty acid combine with 2012cm^3 oxygen releasing 39.4KJ heat. How can you suggest for such observation.
4. (a) Coordination in animals involves endocrine and nervous system. How do they differ? (5 points)
(b) How are the nervous tissues adapted for their functions. (5 points).
5. (a) Binomial nomenclature is grounded on specific established rules which are supposed to be followed when naming new organisms.
(i) Clearly state a rule about each of the following aspects, language used, writing style, parts of the name.
(ii) what if different names are assigned to the same organism?.
(b) How can you differentiate nomenclature from systematic.
(c) Using a tabular method, give three differences between a bracketed key and indented key.

6. (a) (i) what do you know about basal metabolic rate.
(ii) suggest five factors which influence variation in basal metabolic rate of an individual.
- (b) i) what do you know about respiratory quotient.
ii) state the biological significance of respiratory quotient.
7. (a) Why microspores are small in size than megaspore.
(b) What are the biological significance of fertilization.
(c) Describe the structure of the mature pollen grains and state its adaption to the way it performs.

SECTION B (30MARKS)

8. (a) By considering “starch –sugar hypothesis” as the hypothesis which explains the mechanism of opening and closing of stomata. Justify the hypothesis. Diagram is not necessary.
(b) As to why transpiration in plants is referred to be necessary but evil?.
9. (a) (i) How do structure of the eggs are similar to that of sperm, and how do they differ.
(ii) Birth control of “pill” for women usually contain both oestrogen and progesterone hormone. Explain how these hormone can prevent pregnancy.
(b) Predict the consequences of removing the corpus luteum during the trimester of pregnancy. What if corpus luteum is removed during the second trimester.
10. (a) With 5 points explain why lipids not used as a primary respiratory substance?.
(b) Compute for 38 ATP molecules when one molecule of glucose is respired aerobically?