



TANZANIA HEADS OF ISLAMIC SCHOOLS COUNCIL
FORM SIX INTER ISLAMIC MOCK EXAMINATION

BIOLOGY 1

(For both School and Private candidates)

Time: 3 Hours

Wednesday 6th March, 2024 p.m.

Instructions

1. This paper consists of sections **A** and **B** with a total of **ten (10)** questions.
2. Answer all questions in section **A** and **two (2)** questions from section **B**.
3. Each question in section **A** carries **ten (10)** marks and section **B** carries **fifteen (15)** marks.
4. All writing must be in a blue or black ink, except for drawings which must be in pencil.
5. Cellular phones and any unauthorized materials are **not** allowed in the examination room.
6. Write your **Examination Number** on every page of your answer booklet(s).

SECTION A (70 Marks)

Answer **all** questions in this section

1. (a) Due to increased understanding on cell biology the concept of “Cell theory” has been challenged based on the modern knowledge of virology blood cells and origin of life.” Give five (5) points to justify the statement.

(b) Early research on cytoplasmic organelles revealed that mitochondria were formerly aerobic prokaryotes that invaded an ancestral eukaryotic cell and learn to live symbiotically within it. As a recent cytologist, justify this statement by giving five (5) points.
2. (a) (i) By using ring formular show how condensation takes place in the formation of double sugar that naturally occurs in stems of sugar cane plants.
(ii) “Polysaccharides are used as a convenient storage molecule.” Comment on this statement with three (3) points.

(b) In the year 1943, Bloor proposed the classification of lipids based on their chemical composition, briefly show this classification.
3. (a) The Nervous tissue consists of two types of cells, the carriers of nerve impulse and the supporting cells. Identify at least three types of supporting cells and explain how they perform their roles.

(b) However the synapses slow down the transmission of nerve impulses by about 0.5ms, yet it can be assumed that their advantages outweigh this disadvantage. As upcoming neurosurgeon, justify the statement with four points.
4. (a) In C₄ plants, there are two types of chloroplasts that accomplish the process of photosynthesis. Tabulate their differences. (5 points)

(b) Give five (5) important biological functions of HCl with pH around 2 produced by oxyntic cells in the human stomach.
5. (a) Give the meaning of biological key.

(b) A taxonomist provided assignment to students to construct a numbered key whereby the students with both biological and non-biological features below were pointed as specimen:
Susan (female, red hair),
Jane (female, blonde hair),
James (male, pants slacks, black hair),
Linda (female, brown hair, not glasses worn),
Caleb (male, pants Jeans),
Donna (female, brown hair, glasses worn),
Zach (male, parts slacks, brown hair).

6. (a) How many times must a molecule of oxygen diffuse across a cell surface membrane in passing from the inside of the alveolus to Haemoglobin?
- (b) The ability of the lungs to perform the role of exchanging gases is due to the presence of millions of their functional units. As a biology student describe the structure of those units.
7. (a) Dioecious plants perform a very important role of cross pollination, yet they are rare organisms among plant species. As a botanist what do you think might be the possible reasons for this?
- (b) The process of meiosis in living organisms normally differ between plants and animals. Based on the following criteria support this statement:
 - (i) Daughter cells produced
 - (ii) Size of the cells produced
 - (iii) Telophase I
 - (iv) Telophase II

SECTION B (30 Marks)

Answer only **two (2)** questions in this section

8. (a) (i) There are pieces of evidence showing that the xylem tissue transports water and mineral salts in plants. Write short explanation in four (4) points only to support the evidence.
- (ii) Some plant physiologist criticizes the mass flow hypothesis of translocation. Give four (4) points to support them.
- (b) While performing surgery, a medical student accidentally cut two vessels. In one of the vessels, there was a natural fluid flowing at high pressure while the other vessel fluid flows at low pressure. As an upcoming medical doctor what is the potential of this natural flowing fluid observed by a student. (7 points)
9. (a) Tabulate the difference between two processes that occur in the mechanism of gaseous exchange in human. (4 points).
- (b) Assume your biology teacher has assigned you to present the mechanism of electron transport chain as the last stage of cellular respiration in your class. How would you respond to your teacher with six (6) points in reasonable series.
10. It is just a human nature for the women to experience monthly discharge of the uterus lining, dead ovum, and epithelial cells of the uterus as debris out of the vagina. The control centres for this process are the hypothalamus and the pituitary gland. As a biology student assess the hormonal control of this process.

Wabillah Taufiq