P530/2
Biology
Paper 2
July 2024
2½ Hours

ACEITEKA JOINT MOCK EXAMINATIONS 2024

Uganda Advanced Certificate of Education

BIOLOGY PAPER 2

(Theory)

2 Hours 30 Minutes

Instructions to candidates:

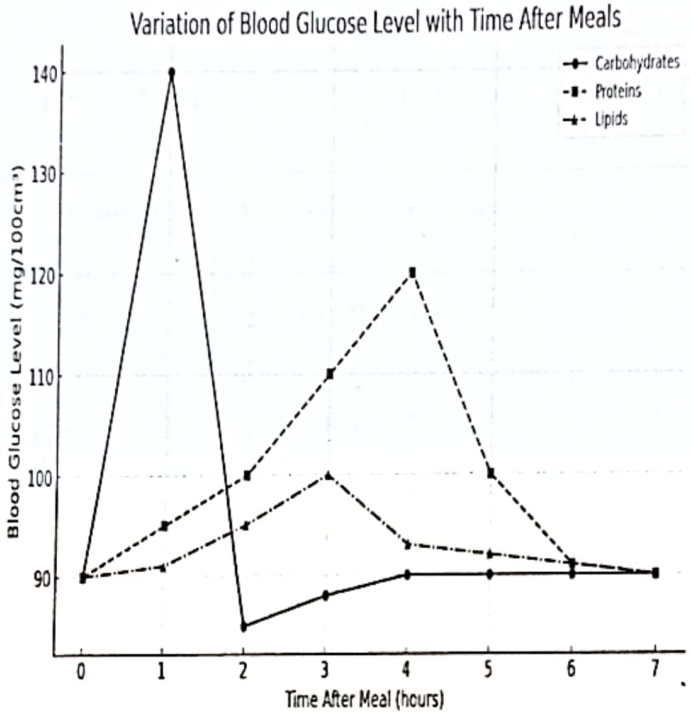
- *This paper consists of* ***Sections A*** *and* ***B***
- *Answer question one in* ***Section A*** *plus three others from* ***Section B***
- *Candidates are advised to read the questions carefully, organize their answers and present them precisely and logically, illustrating with well labeled diagrams wherever necessary.*

Section A: (40 Marks)

1. In an investigation, a healthy adult human blood glucose level was measured after eating complex carbohydrate. The experiment was repeated on another day when the same person ate protein and lastly when the person ate fat. The results obtained were plotted on a graph shown below.

Figure 1

Variation of Blood glucose level with Time after meal



a) Compare the level of blood glucose in the person after carbohydrates meal and protein meal. *(08mks)*

b) Give an explanation for the observed blood glucose level in the person after carbohydrate meal from:

i) 00 hrs to 2 hours *(07mks)*

ii) 2 hours to 7:00 hours *(08mks)*

c) Explain the blood glucose level in the person after:

i) Proteins meal *(04mk)*

ii) Lipids meal *(03mks)*

d) Explain the difference in variation of glucose level after carbohydrates and after a protein meal intake *(07mks)*

e) What is the significance of the physiological process illustrated in figure 1 above? *(03mks)*

SECTION B: (60 MARKS)

2. a) What is meant by the term genetic code? *(04mks)*

   b) Describe how the genetic code guides the process of protein synthesis. *(11mks)*

   c) Briefly describe the fate of a polypeptide chain after translation. *(05mks)*

3. a) Explain the importance of the lymphatic system's major components. *(05mks)*

   b) Describe how the mammalian blood picks up and transports carbon dioxide within the body. *(10mks)*

   c) Explain the effect of carbon dioxide concentration on oxygen carrying capacity of blood. *(05mks)*

4. a) Describe how cones perceive light of various colours using the trichromatic theory. *(08mks)*

   b) Explain why the mammalian ear is capable of delivering sounds of different intensities and frequencies. *(07mks)*

   c) Distinguish between inhibitory and excitatory synapses. *(05mks)*

5. a) Describe the role of the mammalian liver in protein and carbohydrate metabolism. *(10mks)*

   b) Discuss the extent to which plants carry out homeostasis. *(10mks)*

6. a) Explain how signals are used by different animal species in territoriality. *(05mks)*

   b) Explain the benefits of habituation and instinctive behaviors in animals. *(10mks)*

   c) Describe the characteristics of reflexes. *(05mks)*

****END****