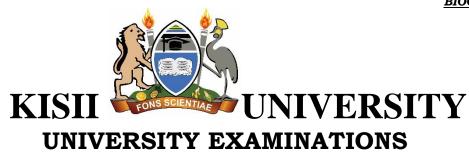
DATE: 19/12/2022



THIRD YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF BACHELOR OF SCIENCE IN BIOTECHNOLOGY FIRST SEMESTER 2022/2023 [SEPTEMBER-DECEMBER, 2022]

BIOC 315: PARASITE BIOCHEMISTRY AND PHYSIOLOGY

STREAM: Y3S1 TIME: 2 HOURS

DAY: MONDAY, 3:00 - 5:00 PM

INSTRUCTIONS

1. Do not write anything on this question paper.

2. Answer ALL questions in section A and any other TWO in section B.

SECTION A (40 marks)

Answer ALL questions in this section

- 1. Explain briefly the mechanism of locating hosts by digenea parasites. Cite specific physiological parameters involved (5 marks)
- 2. Citing parasite environment and life cycles, justify the complexity of parasite biochemistry (5 marks)
- 3. Suggest the roles of the following enzymes during malate dismutation in helminth parasites (5 marks)
 - i. Malate dehydrogenase (MDH)
 - ii. Fumarate hydratase
 - iii. Fumarate reductase
 - iv. Phosphoenol pyruvate carboxykinase (PEPCK)
 - v. Malic enzyme (ME)
- 4. Elucidate on the features that characterize electron transport in parasitic helminthes. (5 marks)

- 5. Describe the functions and significance of heat shock proteins (HSP) in parasites (5 marks)
- 6. Using schistosome cerceriae, describe the mechanism of host entry with specific mention of eicosanoids. (5 marks)
- 7. State and explain the role of bile salts in parasite establishment.

(5 marks)

8. Elucidate on the physiological transformation of digenean cerceriae after skin penetration. (5 marks)

SECTION B (30 marks)

Answer any TWO questions in this section

- 9. Describe in details physiological stages of parasites that enhance their survival outside the host and subsequent transmission. Cite relevant examples. (15 marks)
- 10. a) Explain the effects of optimal experimental conditions on hatching and excystation of protozoa and digenea parasites. (8 marks)
- b) Describe the different energy stores in parasitic helminthes and protozoa. (7 marks)
- 11. a) Discuss physiological significance of hypobiosis in parasites.

(7 marks)

b) Describe the process of homolactate fermentation as a component of energy metabolism in helminths. (8 marks)