



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## University Examinations 2023/2024

FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR  
OF FOOD SCIENCE AND TECHNOLOGY

### SHV 3150: BIOCHEMISTRY

DATE: APRIL 2024

TIME: 2 HOURS

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INSTRUCTIONS: Answer question *one* and any other *two* questions

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#### QUESTION ONE (30 MARKS)

- a) Draw the structures of glucose and its bones (3 marks)
- b) Calculate the  $(H^+)$ ;  $(OH^-)$  and pH of 0.01m ethanoic acid, given that  $(K_a=1.76 \times 10^{-5})$  (4 marks)
- c) Outline the biological importance of cholesterol (2 marks)
- d) Illustrate the structure of ribose and deoxy-ribose (4 marks)
- e) Outline the symptoms of essential fatty acid deficiency (2 marks)
- f) Explain the fate of pyruvate molecules (2 marks)
- g) Write short notes on coenzyme (3 marks)
- h) Differentiate between starch and glycogen (2 marks)
- i) Explain two biological importance buffer (4 marks)
- j) Illustrate the chemical natures of amino acid (2 marks)

**QUESTION TWO (20 MARKS)**

- a) With the aid of a diagram illustrate the structure and function of cell organelles (10 marks)
- b) Discuss photosynthesis in plants (10 marks)

**QUESTION THREE (20 MARKS)**

- a) Discuss glycolysis pathway (8 marks)
- b) Discuss the classification of enzymes (12 marks)

**QUESTION FOUR (20 MARKS)**

- a) Discuss the TCA cycles (10 marks)
- b) Illustrate the urea cycles (10 marks)