



OFFICE OF THE DEPUTY VICE CHANCELLOR
ACADEMICS, STUDENT AFFAIRS AND RESEARCH

UNIVERSITY EXAMINATIONS

2023/2024 ACADEMIC YEAR

THIRD YEAR SECOND SEMESTER REGULAR

EXAMINATION

**FOR THE DEGREE OF BACHELOR OF
EDUCATION SCIENCE**

COURSE CODE: CHE 305E

COURSE TITLE: BIOMOLECULES AND SOCIETY

DATE: 17/4/2024

TIME: 9.00-12.00

INSTRUCTION TO CANDIDATES

- SEE INSIDE

THIS PAPER CONSISTS OF 3 PRINTED PAGES

PLEASE TURN OVER

REGULAR – MAIN EXAM

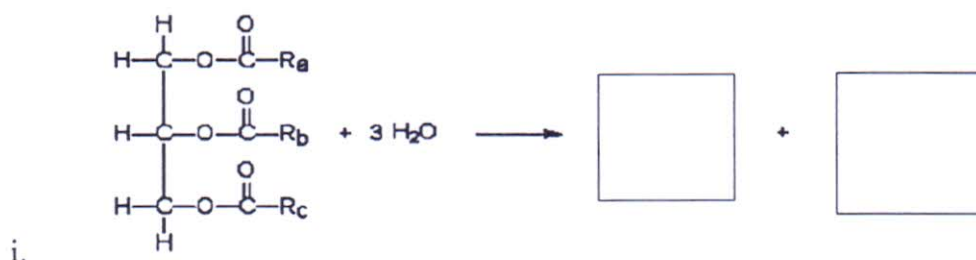
CHE 305E: BIOMOLECULES AND SOCIETY

STREAM: BED (Science)

DURATION: 3 Hours

INSTRUCTIONS TO CANDIDATESAnswer *ALL* questions in section A and any two in Section B.SECTION AQUESTION 1 (30 MARKS)

- a) Carbohydrates are divided into four major groups. Name them (2mks)
- b) Glucose can undergo condensation. Give equations involved in this reaction (2mks)
- c) What is meant by optical activity of sugar? (2mks)
- d) What are lipids made of and which property makes them excellent source of energy?(2 mks)
- e) Complete the following reaction



- (4 mks)
- f) Differentiate essential and nonessential amino acids (3mks)
- g) Explain two functions of proteins (4 mks)
- h) Give the mechanism in which the enzyme function in our bodies (5mks)
- i) What is meant by binding energy as used in the enzymology (2mks)
- j) What are the functions of amino acids in human body? (4 mks)

SECTION BANSWER ANY TWO QUESTIONSQUESTION 2 (20 MARKS)

- a) Discuss the ethical considerations surrounding the use of genetic modification technologies such as CRISPR, in manipulating biomolecules for agricultural purposes.

(10 Marks)

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- b) Using examples differentiate saturated fats from unsaturated fats? (5 Marks)
- c) Explain how hormones regulate physiological processes in organisms? (5 Marks)

QUESTION 3 (20 MARKS)

- a) State the importance of improved varieties of crops in the society (10 Marks)
- b) State three primary function of carbohydrates in living organisms? (3 Marks)
- c) Explain how enzymes facilitate biochemical reactions in cells? (3 Marks)
- d) Differentiate type 1 diabetes from type 2 diabetes (4 Marks)

QUESTION 4 (20 MARKS)

- a) Using appropriate examples and structures differentiate monosaccharides, disaccharides and polysaccharides (20 Marks)