

CHUKA



UNIVERSITY

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**EXAMINATION FOR THE AWARD OF DEGREE OF
BACHELOR OF SCIENCE IN BIOCHEMISTRY**

BIOC 203: BIOCHEMISTRY OF LIPIDS

STREAMS: BSC (BIOC)

TIME: 2 HOURS

DAY/DATE: MONDAY 03/12/2018

2.30 PM – 4.30 PM

INSTRUCTIONS:

Answer Question One and any other Two Questions

Question 1 (Compulsory) – 30 marks

- (a) Define lipids and highlight Bloor's classification of lipids. [5 marks]
- (b) State five physiological and pharmacological effects of eicosanoids. [5 marks]
- (c) Draw the structure of phosphatidylcholine. Circle the part of the molecule that is polar and draw an arrow to the part that is nonpolar. [5 marks]
- (d) Describe the general structure of triacylglycerols. State the difference between simple and mixed triacylglycerols. [5 marks]
- (e) Briefly describe the general structure of glycerophospholipids. [5 marks]
- (f) Name the ring present in cholesterol and state four biologically important compounds derived from cholesterol. [5 marks]

Question 2 (20 marks)

- (a) Give a brief account of the nomenclature of fatty acids. [7 marks]
- (b) Explain biological importance of essential fatty acids. [5 marks]
- (c) Describe the structure of fatty acids and explain how saturated, monounsaturated, and polyunsaturated fatty acid structures differ. [8 marks]

Question 3 (20 marks)

- (a) Describe and structurally differentiate between gangliosides and cerebroside. [6 marks]
- (b) Describe the biological functions of gangliosides and cerebroside. [6 marks]
- (c) Describe the structure and briefly discuss about surfactant present in lung. [8 marks]

Question 4 (20 marks)

- (a) Define lipoproteins. [1 mark]
 - (b) Draw lipoprotein structure, label its various components. [9 marks]
 - (c) Classify lipoproteins and explain their functions. [10 marks]
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