SOUTH EASTERN KENYA UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCEIN BIOCHEMISTRY AND MOLECULAR BIOLOGY

BCH 205: BASIC METABOLISM II

DATE: 12TH APRIL, 2017 TIME: 1.30-3.30 P.M

INSTRUCTIONS TO CANDIDATES

(a) Answer ALL the Questions in Section A
(b) Answer ANY TWO Questions in Section B
(c) Illustrate your answers with well labeled diagrams where appropriate

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SECTION A (30 MARKS)

1. Briefly describe the process of saponification. (**3 marks**)
2. Briefly explain lipid digestion. (**3 marks**)
3. Free palmitate is activated to its coenzyme A derivative (palmitoyl-CoA) in the cytosol before it can be oxidized in the mitochondrion. If palmitate and [^{14}C] coenzyme A are added to a liver homogenate, palmitoyl-CoA isolated from the cytosolic fraction is radioactive, but that isolated from the mitochondrial fraction is not. Explain. **(3 marks)**
4. Explain the fate of Fatty acyl-CoA in the liver. (**3 marks**)
5. State the limiting factor of β-oxidation of unsaturated fatty acids giving its remedy. (**3 marks**)
6. List the **three** enzymes involved in propionyl-CoA oxidation. (**3 marks**)

7. Explain the fate of ketone bodies formed during fasting or diabetes. (**3 marks**)

8. Briefly describe medical disorders associated with peroxisomes in mammals. (**3 marks**)

9. Outline the first stage of triacylglycerols biosynthesis in a mammalian cell. (**3 marks**)

10. List the **four** stages of cholesterol synthesis. (**3 marks**)

SECTION B (40 MARKS)

11. With the help of named examples discuss Eicosanoids. (**20 marks**)

12. Describe the carnitine shuttle. (**20 marks**)

13. Describe the β-oxidation of the polyunsaturated linoleoyl-CoA ($18{:}2\Delta^{9,12}$). (**20 marks**)

14. Describe the biosynthesis of ketone bodies. (**20 marks**)