

**EDO UNIVERSITY IYAMHO**

**COLLEGE OF MEDICAL SCIENCES**

**FACULTY OF BASIC MEDICAL SCIENCES**



**DEPARTMENT OF BIOCHEMISTRY**

**2<sup>ND</sup> SEMESTER EXAMINATION (2017/2018) ACADEMIC SESSION**

**COURSE TITLE: METABOLISM OF CARBOHYDRATE AND LIPIDS**

**COURSE CODE: BCH 221 TIME: 3 HOURS CREDIT UNIT: 3**

**INSTRUCTIONS: ANSWER ANY FIVE (5) QUESTIONS**

- 1a). Discuss the formation of NADPH using glucose 6-phosphate as the starting material?
- 1b). Of what importance is NADPH and Ribose 5-phosphate?
  
- 2a). Show the irreversible steps of glycolytic pathway?
- 2b). Show the ATP synthesizing steps of glycolysis.
- 2c). Show the ATP utilization steps of glycolysis.
- 2d). Discuss the Anaerobic fate of Pyruvate
  
- 3a). Highlight the role of insulin in regulation of blood glucose.
- 3b). Write briefly on Hyperglycemia and Hypoglycemia
- 3c). How is oxaloacetate replenished for krebs cycle?
  
- 4a). Write briefly on the following: (i) Iron (ii) Zinc (iii) Vitamin D (iv) Vitamin E (v) Thiamin
- 4b). lipases and phospholipases are very important esterases; Exhaustively discuss
  
- 5a). What are steroids, phosphoacylglycerides, glycolipids and triacylglycerides
- 5b). arrange the four molecules in (a) above in order from higher to lower energy obtained on complete catabolism to CO<sub>2</sub> and H<sub>2</sub>O
- 5c). Explain the four stages in extraction of biological energy from such molecules in aerobic organisms (e.g mammals).
- 5d). In the 3<sup>rd</sup> stage, acetylCoA is oxidized to CO<sub>2</sub> and electrons are transferred to electron carriers. Name the pathway involved and the electron laden carriers involved.
  
- 6a). Outline the basic purpose of metabolism in biological systems
- 6b). Using appropriate examples, discuss the roles of oxidation/reduction reactions in metabolism
  
- 7). Write short notes on the following
  - (a). Snake bites and bleeding to death
  - (b). Extensive tissue damage due to spider venom
  - (c). Lipoproteins and lipid transport
  - (d). Conditions that promote lipogenesis
  - (e). -oxidation; summary
  - (f). -oxidation
  - (g). Hormone sensitive lipase
  - (h). Role of lipids in membrane structure and function