ELIZADE UNIVERSITY,

ILARA-MOKIN,

ONDO STATE

FACULTY: BASIC & APPLIED SCIENCES

DEPARTMENT: BIOLOGICAL SCIENCES

FIRST SEMESTER EXAMINATION

2016/2017 ACADEMIC SESSION

COURSE CODE: BTH 407

COURSE TITLE: BIOPHYSICS

DURATION: 2 HOURS

HOD's SIGNATURE

NAME:.....MAT. No:.....

INSTRUCTION
ANSWER FOUR QUESTIONS.
ALL QUESTIONS CARRY EQUAL MARKS.

1. (i) Discuss in details the types of nucleotides and briefly highlight the structure DNA.

   (ii) It is important to determine the structure of DNA and proteins while studying genetic information of organisms. Discuss briefly how the methods below are applied to studying the structure of proteins and DNA

   a. X-ray crystallography
   b. NMR spectroscopy

2. Based on the basic concepts and laws of thermodynamics, explain the following terms briefly using correct biophysics register:
   a. Thermodynamic system
   b. Reversible and irreversible process
   c. Close and open system
   d. Isolated system.

3. (a) Discuss first and Second law of thermodynamics with focus on meaning of entropy, enthalpy and free energy.

   b) What is Diffusion and how would you explain the concept using diffusion flux and Fick's laws.

4. (a) Narrate the properties of ATP as a perfect energy carrier in high and low-energy compounds;
   (b) Explain with example why ATP is called energy currency.
   (c) Draw a diagram illustrating the work of sodium-potassium pump
   (d) Describe the mechanism of active transport using a selected example

5. Describe the types of ion channels and Characteristics of the sodium channel.
   (b) Explain the mechanism of the formation of action potential.
   (c) What do you understand by membrane depolarization?

End of Question