ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE

FACULTY: BASIC AND APPLIED SCIENCES

DEPARTMENT: PHYSICAL AND CHEMICAL SCIENCES

SECOND SEMESTER EXAMINATIONS: 2015/2016 ACADEMIC SESSION

COURSE CODE: BCH 208 COURSE TITLE: NUCLEIC ACID METABOLISM

DURATION: 2.5 Hours HOD's SIGNATURE

TOTAL MARKS: 60

INSTRUCTIONS: ANSWER ANY 4 QUESTIONS

1. Write briefly on the following :
   a. Hydrolysis of Polynucleotides.
   b. Nitrogenous bases.
   c. RNA and DNA.
   d. Examples of RNA.
   e. Start and Stop Codon.

2. a. Differentiate between Nucleotide and Nucleoside.
   b. With the aid of diagrammatic illustrations describe the catabolism of Purine and Pyrimidine.

3. i. Describe the process of Protein Synthesis.
   ii. Transcribe the following DNA sequences into their complementary RNA strands:
   a. C-C-C-T-A-G-A-A-T-T-G-G
   b. G-A-T-C-G-T-A-G
   c. T-T-A-C-G-C-C-A-A-A-G
   d. T-G-C-G-C-A-T-C
   e. A-G-C-G-T-T-A-A-C-C-A

iii. Translate the following DNA sequences:

a. A-A-A-G-T-A-A-C-A-G-C-A
b. T-A-A-G-T-G-T-C-A
c. C-A-A-A-T-T-A-T-C-A-G-A
d. T-A-C-G-A-A-G-G-G-G-G-T
e. C-T-A-C-G-A-G-G-C

4. Write briefly on the following in born errors of metabolism

a. Hyperuricemia.
b. Hemophilia.
c. Von -Gierke's Disease.
d. Galactosemia.

5. (i) a. What is a replication fork?
b. With a suitable diagramme only, illustrate the formation of leading and lagging strands at the replication fork
c. State the requirements for DNA replication by DNA polymerase I (from E. coli)
d. State the three (3) active sites found on DNA polymerase I
e. List two accessing proteins involved in the replication of bacterial chromosomes.

(ii) Write a note on Topoisomerase I

6. In eucaryotes, replication of chromosomal DNA starts at many origins (i.e. by multiple replicons). Discuss.