National Open University Of Nigeria
Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi - Abuja
Faculty of Science
OCTOBER/NOVEMBER 2016 EXAMINATION

COURSE CODE: BIO305
COURSE TITLE: MOLECULAR BIOLOGY
CREDIT UNIT: 2
TIME: 2 HOURS
INSTRUCTION: ANSWER QUESTION ONE (1) AND ANY OTHER THREE (3) QUESTIONS

1. (a) Define Molecular Biology (3 marks)
   (b) Using a **well labeled diagram**, outline the important features of glycolysis (6 marks)
   (c) Give a **detailed** description of hormonal control of gene-expression (8 marks)
   (d) Account of any two methods of determining DNA sequences (8 marks)

2. (a) Describe the structures of DNA (6 marks)
   (b) Write **short notes** on the following:
   i. Termination of transcription (3 marks)
   ii. Chain elongation (3 marks)
   iii. Promoter clearance. (3 marks)

3. (a**)** Summarize **comparatively** the roles of DNA and RNA (5 marks)
   (b**)** Provide an illustrated description of the central dogma (10 marks)

4. (a.) What is DNA sequencing? (3 marks)
   (b) Write **short notes** on the following:
   (i) Chromosome number (4 marks)
   (ii) Sex chromosomes (4 marks)
   (iii) A cistron (4 marks)

5. (a) Enumerate the major components of a nucleotide (5 marks)
   (b) Describe with examples and illustrations the human genetic disorders (10 marks)

6. (a) Schematically outline the process of oxidative phosphorylation (7 marks)
   (b) Account for the fact that *E. coli* is used as an experimental model in Molecular Biology (8 marks)