NATIONAL OPEN UNIVERSITY OF NIGERIA
14-16 AHMADU BELLO WAY, VICTORIA ISLAND LAGOS
SEPTEMBER/OCTOBER 2015 EXAMINATION

SCHOOL OF SCIENCE AND TECHNOLOGY

COURSE CODE: BIO 305
COURSE TITLE: MOLECULAR BIOLOGY
TIME ALLOWED: 2 Hours
INSTRUCTION:ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER THREE QUESTIONS

1. (a) Enumerate the importance of genes in heredity. (4 marks)
(b) *Ecsherichia coli* is useful in molecular biology. Discuss. (9 marks)
(c) What is gene-expression? (3 marks)
(d) Outline the characteristics of genetic code. (9 marks)

2. (a) Define the term catabolism. (3 marks)
(b) Give a **detailed** description of any **2** methods used for determining DNA sequences.
(12 marks)

3. (a) Outline the relationship of molecular biology to other biological sciences. (5 marks)
(b) List the major components of a nucleotide. (3 marks)
(c) Describe how hormones control gene-expression. (7 marks)

4. (a) Describe the process of oxidative phosphorylation. (7 marks)
(b) Describe the structure of a DNA. (8 marks)

5. (a) Enumerate the roles of DNA and RNA? (2 marks)
(b) List the stages involved in the breakdown of glucose. (4 marks)
(c) Describe the various steps involved in the process of chain elongation stage during protein synthesis. (9 marks)

6. (a) Outline the important features of glycolysis. (6 marks)
(b) Write **short notes** on the following:

(i) m RNA (3 marks)
(ii) t RNA (3 marks)
(iii) r RNA (3 marks)