



NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA
FACULTY OF SCIENCES
Department of Pure and Applied Sciences
OCTOBER/NOVEMBER, 2019 EXAMINATIONS

BIO 305: MOLECULAR BIOLOGY

Time allowed: 2hrs

Credit Units: 2

Instruction: Answer FOUR questions only. Question 1 is compulsory.

1a. State at least eight disciplines/areas where the knowledge of molecular biology or genetic engineering can be applied (8 marks)

1b. Describe the characteristics of the genetic code (9 marks)

1c. Justify the use of *Escherichia coli* as an experimental model in genetic engineering (8 marks)

2. Write short notes on the following

i. Gene (7 marks)

ii. Cistron (5 marks)

iii. Muton (3 marks)

3a Establish a relationship between number of chromosomes and genetic disorders in humans. (5marks)

3b. Explain the role of chromosomes in inheritance (10 marks)

4a. Compare the Deoxyribonucleic acid (DNA) with Ribonucleic acid (RNA) (6marks)

b. Discuss succinctly DNA structure (9 Marks)

5a. Enumerate 3 enzymes involved in DNA replication (3 marks)

5b. Explain the relationship between DNA structure and replication (12 marks)