

**NATIONAL OPEN UNIVERSITY OF NIGERIA**

**PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA**

**FACULTY OF SCIENCE**

**April, 2019 EXAMINATION**

**BIO 305: MOLECULAR BIOLOGY**

**Time allowed: 2hrs**

**Credit Units: 2**

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

1a**.** Define the term ‘gene’ (4 marks)

1b. State the fate of pyruvic acid from glycolysis in

1. aerobic conditions ( 4½ marks )
2. anaerobic condition ( 4½ marks )

1c. Write briefly on the three major processes in the cellular utilization of genetic information. (9 marks)

1d.List the Stop codons (3 marks)

2a.

i What is the meaning of the acronym RFLP in Molecular Biology (1 mark)

ii. Give two applications of RFLP analysis. (2 marks)

2b Explain the use of gel electrophoresis as a tool in Molecular Biology under the following titles

1. Principle ii. Materials iii. Procedure iv. Result (6 marks)

2c. Identify 4 reasons why *Escherichia coli* is usedas an experimental model in Molecular Biology. (6 marks)

3. Explain the role of chromosomes in the accurate transfer of traits from parents to offspring during sexual reproduction (15 marks).

4a. Enumerate the requirements for the Chain-Termination Method of DNA sequencing

(5 marks)

4b. Expatiateon the steps involved in Chain-Termination Method of DNA sequencing

(10 marks)

5a.List the various processes involved in chain elongation (3 marks)

5b. Outline the sequence of events during the final stage of translation (12 marks)