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 **NATIONAL OPEN UNIVERSITY OF NIGERIA**

**National Open University Of Nigeria**

**Plot 91, Cadastral Zone, NnamdiAzikiwe Expressway, Jabi - Abuja**

 **Faculty of Sciences**

**DEPARTMENT OF PURE AND APPLIED SCIENCES**

**NOVEMBER 2018\_2 EXAMINATION**

**COURSE TITLE: MOLECULAR BIOLOGY**

**CREDIT UNIT: 2**

**COURSE CODE: BIO 305**

**TIME ALLOWED: 2 HOURS**

**INSTRUCTION: ANSWER FOUR QUESTIONS ONLY. QUESTION 1 IS COMPULSORY.**

**1**a. Enumerate four characteristics of *Escherichia coli* that make it a suitable experimental model in Molecular Biology **(6marks)**

1b Highlight the roles of Deoxyribonucleic acid in organisms **(6marks)**

1c.Expantiate on the unique features of the transfer-Ribonucleic acid **(8 marks)**

1d. i Explain the term ‘Metabolism’ **(3 marks)**

ii. List the substances formed by pyruvic acid peculiar to;

1. The aerobic conditions **(1 mark)**
2. The anaerobic conditions **(1 mark)**

 **2**a. State the role of Restriction Fragment Length Polymorphism, (RFLP) analysis in Molecular Biology **(2marks).**

2b. Describe the use of Gel electrophoresis in Molecular Biology. **(13marks)**

**3**a. Describe the structure of the chromosome **(9 marks)**

3b. Explain the role of chromosomes in hereditary **(6 marks)**

**4**. Describe the mechanism of chain initiation during protein synthesis **(15 marks)**

**5**a Describe the central dogma of Molecular Biology **(6marks)**

5b. Write at least 3 codons for the following amino acids;

1. Proline ii. Leucine iii. Glycine **(9 marks)**