



NATIONAL OPEN UNIVERSITY OF NIGERIA

**Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi - Abuja
Faculty of Science**

DEPARTMENT OF BIOLOGICAL SCIENCES

2024 1 EXAMINATION

COURSE CODE: BIO 305

COURSE TITLE: MOLECULAR BIOLOGY

CREDIT UNIT: 3 Units

TIME ALLOWED: 3 Hours

INSTRUCTION: Answer Question ONE (1) and any other THREE (3) Questions

1. a. List the codons that code for chain termination of polypeptide synthesis. 3 Marks
b. Draw the diagram of uracil. 3 Marks
c. Why is yeast better than *Escherichia coli* as a model organism for eukaryotic cell biology? 7Marks
d. Give an appraisal on chromosome as an important genetic material 7 Marks
e. What is wobble hypothesis? What is the importance of wobble and degeneracy? 5 Marks
2. a. Define an operon. 2 Marks
b. What are genes? 6 Marks
c. The history of DNA world is written in gene sequences. Justify this statement. 5 Marks
d. Mention the functions of DNA ligase 2 Marks
3. a. List eight (8) disciplines of molecular genetics 4 Marks
b. Expatiate on hormonal control of gene expression 11 Marks
4. a. Enumerate five (5) applications of molecular biology in the field of Agriculture. 5 Marks
b. How are genes expressed in bacteria? 10 Marks
5. a. What do you understand by the term cistron? 5 Marks
b. How has genes been able to interpret evolution in its modern sense? 5 Marks
c. Describe the features of an RNA that acts as the 'factory' for the protein synthesis. 5 Marks
6. a. The start codon in protein synthesis is ___ and codes for which amino acid ___ 2 Marks
b. Write notes on features and functions of Transfer RNA structure 6 Marks
c. What is a same sense gene mutation? 7 Marks