



**ELIZADE UNIVERSITY,  
ILARA-MOKIN, NIGERIA**

**FACULTY: BASIC & APPLIED SCIENCES**

**DEPARTMENT: BIOLOGICAL SCIENCES**

**SECOND SEMESTER EXAMINATION**

**2017/2018 ACADEMIC SESSION**

**COURSE CODE: BTH 414**

**COURSE TITLE: MOLECULAR GENETICS**

**DURATION: 2 HOURS**

**HOD'S SIGNATURE**

**NAME:.....**

**MAT. No:.....**

**INSTRUCTION: Answer four questions in total  
Every set of questions carry equal marks**

1. Deoxyribonucleic acid (DNA) and ribonucleic acid (RNA) are important genetic particles involved in cellular modifications.
  - i. In a tabular format, list the three types of RNA and their function.
  - ii. Explain DNA transcription in detail with diagrammatic representations where possible.
2. After transcription, the DNA configuration produces a set of codons
  - a. Give the relationship between the genetic code and configuration of codons.
  - b. Explain with example why more than one codon can code for different amino acids.
3. Mutation is a change in the genetic code of an organism.
  - i. Briefly explain the effects of mutations on protein structure.
  - ii. Describe wobble phenomena during translation.
4. DNA and RNA are two contrasting cellular molecules
  - a. Compare and contrast DNA and RNA .
  - b. What are the applications of polymerase chain reaction in genetics and biotechnology.
5. Describe:
  - a. the procedure involved in Polymerase Chain Reaction.
  - b. the functions of the following enzymes:
    - i. DNA helicase
    - ii. DNA primase
    - iii. DNA polymerase Ligase
6. Write short note on the following:
  - a. DNA replication
  - b. Genetic recombination
  - c. Nucleic acid
  - d. PCR limitations