



ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE, NIGERIA

**BASIC & APPLIED SCIENCES
BIOLOGICAL SCIENCES
SECOND SEMESTER EXAMINATION
2016/2017 ACADEMIC SESSION**

COURSE CODE: BTH 202

COURSE TITLE: Introduction to Biotechnology and Genetic Engineering II

A handwritten signature in black ink, enclosed within a rectangular box. The signature appears to be 'A. D. O. S. O.'.

DURATION: 2HRS

HOD'S SIGNATURE

NAME:..... MAT.No:.....

INSTRUCTIONS; Attempt four questions in all

SECTION A

Answer any two questions from this section

1. Lac operon is one of the most understood mechanism of gene regulation, Give a concise explanation of this mechanism.

b) Explain anabolism and catabolism

c) Which molecule is the most abundant in the body?

2. Describe negative and positive transcriptional control in gene regulation

b) List and explain types of fatty acids

c) What are the symptoms in the body when there is absence or insufficient production of insulin?

3. Explain the mechanism exploited in the production of a vaccine 6marks.

b) List and explain types of genes

c) In gene expression what do u understand by mRNA processing?

SECTION B

Answer all Questions in this Section

Question 1

- What is bioinformatics (2 Marks)
- Briefly describe the use of bioinformatics in life sciences related field (5 Marks)
- What are biological database (2 Marks)
- Identify with reason which macromolecule has the under listed sequences (5 Marks)
 - `>gi|14456711|ref|NM_000558.3| Homo sapiens hemoglobin, alpha 1 (HBA1), mRNA`

ACTCTTCTGGTCCCCACAGACTCAGAGAGAACCCACCATGGTGCTGTCTCCTG
CCGACAAGACCAACGTCAAGGCCGCTGGGGTAAGGTCGGCGCGCACGCTG
GCGAGTATGGTGCGGAGGCCCTGGAGAGGATGTTCTCCTGTCCTTCCCCACCAC
CAAGACCTACTTCCCGCACTTCGACCTGAGCCACGGCTCTGCCCA

- MVLSPADKTNVKAAWGKVGAHAGEYGAEALERMFLSFPTTKTYFPHFDLSH
GSAQVKGHGKKVADALTNVAHVDDMPNALSALSDDLHAHKLRVDPVNFKL
LSHCLLVTLAAHLPAEFTPAVHASLTKFLASVSTVLTISKYR

Question 2

- Describe the basic purpose of conduction a Polymerase Chain Reaction (PCR) experiment (5 Marks)
- What are the role of the following in PCR experiment (5 Marks)
 - Temperature at 94°C
 - Temperature at 50°C
 - Temperature at 72°C
 - Taq polymerase
 - Primers
- What is cloning (2 Marks)
 - Mention and describe the two techniques in cloning (4 Marks)