



ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE, NIGERIA

BASIC & APPLIED SCIENCES
BIOLOGICAL SCIENCES
SECOND SEMESTER EXAMINATION
2020/2021 ACADEMIC SESSION

COURSE CODE: BTH 202

COURSE TITLE: Introduction to Biotechnology and Genetic Engineering II

DURATION: 2HRS

NAME: MAT. No:

INSTRUCTIONS; Attempt Four questions in all

SECTION A

Answer any Two questions from this section

1. Explain the mechanism exploited in the production of a vaccine.

b) List and explain types of genes

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

[15 Marks]

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

b) What are the properties of DNA as explained in Watson-Cricks model?

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

[15 Marks]

3. 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?

[15 Marks]

SECTION B

Answer any Two Questions in this Section

Question 1

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

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ACTCTTCTGGTCCCCACAGACTCAGAGAGAACCCACCATGGTGCTGTCTCCTGCC  
CAAGACCAACGTCAAGGCCGCCTGGGGTAAGGTCGGCGCGCACGCT  
GGCGAGTATGGTGCGGAGGCCCTGGAGAGGATGTTCTGTCTTCCC  
CACCACCAAGACCTACTTCCCGCACTTCGACCTGAGCCACGGCTCTG  
CCCA
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ii.

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MVLSPADKTNVKAAWGKVGAAHAGEYGAELERMFLSFPTTKTYFPHF  
DLSHGSAQVKGHGKKVADALTNAVAHVDDMPNALSALSDLHAHKLR  
VDPVNFKLLSHCLLVTLAAHLPAEFTPAVHASLDKFLASVSTVLTSKYR
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[15 Marks]

Question 2

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

[15 Marks]

Question 3

- Define Bioethics and Biosafety
- What are the safety and ethical concern faced by biotechnology application?
- What are the four laboratory biosafety level and explain the level of risk containment

[15 Marks]