



ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE, NIGERIA

BASIC & APPLIED SCIENCES
BIOLOGICAL SCIENCES
SECOND SEMESTER EXAMINATION
2017/2018 ACADEMIC SESSION

COURSE CODE: ^{BT4}202

COURSE TITLE: Introduction to Biotechnology and Genetic Engineering II

DURATION: 2HRS

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HOD'S SIGNATURE

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

INSTRUCTIONS; Attempt Questions One and Any other Two

1. (a) What is bioinformatics?

(b) i. What are the bottleneck for scientific advances, solved by bioinformatics?

ii. What are the challenges of early scientist with the acceptance of bioinformatics?

(c) What are the major advantages of WWW based servers in bioinformatics?

(d) Identify with reason which macromolecule has the under listed sequences

i. >gi|14456711|ref|NM_000558.3| **Homo sapiens hemoglobin, alpha 1 (HBA1), mRNA**

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ACTCTTCTGGTCCCCACAGACTCAGAGAGAACCCACCATGGTGCTGTCTCCTG
CCGACAAGACCAACGTCAAGGCCGCCTGGGGTAAGGTCGGCGCGCACGCTG
GCCGAGTATGGTGCGGAGGCCCTGGAGAGGATGTTCTGTCTTCCCCACCAC
CAAGACCTACTTCCCGCACTTCGACCTGAGCCACGGCTCTGCCCA
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ii)

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MVLSPADKTNVKAAWGKVGAHAGEYGAELERMFLSFPTTKTYFPHFDLSHGSA
QVKGHGKKVADALTNAVAHVDDMPNALSALSIDLHAHKLRVDPVNFKLLSHCLL
VTLAAHLPAEFTPAVHASLKDFLASVSTVLTISKYR
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2. (a) 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) Saturated or unsaturated fatty acid which is healthy? Give reasons(s) for your choice.

3. (a) i. What is cloning?

ii. Describe the following techniques in cloning

(a) Embryo splitting

(b) Nuclear transfer

iii. What are the problems associated with cloning by nuclear transfer?

(b) i. What is ethics?

ii. Describe with notable examples, the role of ethics in biotechnology discoveries

4. (a) Explain the mechanism exploited in the production of a vaccine.

(b) List and explain types of genes

(c) What are Okazaki fragments?

5. (a) List and explain the steps involved in gene expression

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

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