

BOWEN UNIVERSITY, IWO, OSUN STATE
(of the Nigerian Baptist Convention)
COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCE (COAES)
BIOCHEMISTRY PROGRAMME
SECOND SEMESTER, 2022/2023 SESSION

COURSE CODE: BCH 204

CREDITS: 3

COURSE TITLE: METABOLISM OF LIPIDS AND NUCLEIC ACIDS

TIME ALLOWED: 2 ½ HOURS

INSTRUCTIONS: ANSWER TWO QUESTIONS FROM EACH SECTION
ANSWER EACH QUESTION ON A NEW PAGE

SECTION A

QUESTION ONE

- (a) Draw the structures of five nitrogenous bases of DNA and RNA (10 marks)
(b) Write concisely on mRNA, tRNA and rRNA (10 marks)

QUESTION TWO

- (a) Write the complementary base sequence for the matching strand in the following DNA section: —A—G—T—C—C—A—A—T—C—T— (10 marks)
(b) Write concisely on the following:
i. Lesch-Nyhan syndrome (5 marks)
ii. Autism (5 marks)

QUESTION THREE

Explain the following pathways of nucleotide biosynthesis:

- (a) Denovo pathway (7.5 marks)
(b) Salvage pathway (7.5 marks)
(c) State five biochemical importance of nucleotide (5 marks)

SECTION B

QUESTION FOUR

- (a) Define the term 'mutations' (2 marks)
(b) Describe the three (3) classes of mutations in the gene and give appropriate examples of genetic disorders associated with each class (6 marks)
(c) Explain the consequences of mutations (12 marks)

QUESTION FIVE

- (a) Explain the term 'operon' (5 marks)
(b) Describe the effects of the presence of glucose and lactose on the lac operon in *E. coli* (15 marks)

QUESTION SIX

- (a) Vectors are important in DNA recombinant technology. Explain. (10 marks)
(b) Describe the procedures involved in DNA recombinant technology (10 marks)