Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2019/2020

COURSE NAME	:	INTRODUCTION TO CELL AND MOLECULAR BIOLOGY
COURSE CODE	:	BWJ 20102
PROGRAMME CODE	:	BWW
EXAMINATION DATE	:	DECEMBER 2019 / JANUARY 2020
DURATION	:	2 HOURS
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

Q1 (a) (i) Explain the important contributions of Rosalind Franklin in the discovery of DNA model by Watson and Crick in 1953.

(3 marks)

(ii) List **FIVE (5)** common amino acids in a cell.

(5 marks)

(iii) Illustrate the general amino acid monomer.

(4 marks)

(b) (i) Explain the Gibbs free energy of a system.

(3 marks)

(ii) Differentiate between endergonic and exergonic reaction.

(4 marks)

(ii) Illustrate the graph of free energy for both exergonic and endergonic reactions.

(6 marks)

Q2 (a) List **FIVE (5)** functions of membrane protein.

(5 marks)

(b) (i) Differentiate **TWO (2)** major types of membrane proteins.

(4 marks)

(ii) Outline **TWO (2)** types of transport protein.

(6 marks)

(c) Differentiate diffusion, facilitated diffusion and active transport.

(10 marks)

Q3 (a) Demonstrate the process of DNA replication.

(12 marks)

(b) Demonstrate the process of DNA repair mechanism.

(4 marks)

(c) Outline the process of protein synthesis during translation of mRNA.

(9 marks)

Q4 (a) By using lac operon as model, demonstrate how cell can regulate the expression of the genes encoding the enzymes.

(12 marks)

(b) Illustrate the process of molecular cloning.

(5 marks)

(c) Explain the sources of genetic variation.

(4 marks)

(d) Explain the importance of genetic diversity in conservation of biodiversity.

(4 marks)

- END OF QUESTIONS -