Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2018/2019

COURSE NAME	:	CELL BIOLOGY / BIOLOGY FORMS AND FUNCTIONS
COURSE CODE	:	DAS 16403 / DAS 16103
PROGRAMME CODE	:	DAU
EXAMINATION DATE	:	JUNE / JULY 2019
DURATION	:	2 HOURS 30 MINUTES
INSTRUCTION	:	ANSWERS **FIVE (5)** QUESTIONS ONLY

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

Q1 (a) Atom is a basic unit of chemical.

(i) State the charges of items that contains in a atom.

(3 marks)

(ii) Briefly explain the characteristics of an atom that have a neutral charge.

(1 mark)

(iii) State the item that give the mass of an atom.

(1 marks)

(b) (i) Sketch the structure of water molecule.

(2 marks)

(ii) Explain the characteristics of water that makes water as universal solvent

(3 marks)

(iii) Draw and explain the arrangement of water molecule and Sodium cloride (NaCl) when the salt dissolves in water.

(6 marks)

(c) (i) Define acid, base and buffer.

(3 marks)

(ii) Describe one important of buffer in life.

(1 mark)

Q2 (a) Carbon are the framework of biological molecules.

(i) State and sketch all type of covalent bond that carbon can forms.

(8 marks)

(ii) Give the reason of why carbon can form four covalent bond with other atom.

(1 mark)

(b) Carbohydrates is molecules that contain carbon, hydrogen and oxygen.

(i) State the empirical formula for carbohydrates

(1 mark)

(ii) Sketch the molecule structure of glucose

(2 marks)

(iii) Sketch the dehydration reaction between two glucose molecule to produce maltose

(3 marks)

(c) (i) Describe lipid

(2 marks)

(ii) State all major group of lipids and explain the composition of the structure

(3 marks)

Q3 (a) (i) Briefly explain about 'The Cell Theory'

(5 marks)

(ii) Give the similarity of prokaryotic and eukaryotic cell

(4 marks)

(iii) Define organelle

(1 mark)

(b) Describe the structure and functions of organelle listed below

(i) Ribosome

(2 marks)

(ii) Rough endoplasmic reticulum

(2 marks)

(iii) Lysosome

(2 marks)

(iv) Cloroplast

(2 marks)

(v) Mitochondria

(2 marks)

Q4 (a) (i) Briefly explain functions of cell membrane

(2 marks)

(ii) List all components of cell membrane

(4 marks)

(b) (i) Sketch the phospholipid structure that build cell membrane

(2 marks)

(ii) Describe the characteristics head and tail of phopholipid structure

(4 marks)

(c) Sketch and differentiate passive transport and active transport that involve carrier protein

(8 marks)

Q5 (a) (i) State the molecule of energy in life.

(2 marks)

(ii) Sketch and explain the process of storing and releasing energy of molecule in **Q5(a)(i).**

(6 marks)

(b) (i) Define enzyme

(1 mark)

(ii) Show and describe the function of important sites of an enzyme

(5 marks)

(c) Glucose is a major source of energy in living cells. Sketch the overall cellular respiration of glucose to produce cell energy. Show the detail of the processes include location of each process, organelles involve and product of each process.

(6 marks)

Q6 (a) (i) State the type of cell with its cell division type that occur in living organisms.

(2 marks)

(ii) Describe cell cycle

(2 marks)

(iii) Explain two main stage in cell cycle

(1 mark)

(b) Sketch and explain each phase of mitotic division of a cell that consists of 4 chromosomes.

(15 marks)

Q7 (a) Living organisms show their inheritance traits by express it from DNA to protein.

(i) List all processes that involve in converting DNA sequence into protein.

(3 marks)

(ii) Give the function, location and organelles involve in each process.

(5 marks)

(b) A girl with AB blood type married to a man that also have AB blood type. Skech the genetics inheritance chart and predict the children's blood type from this couple.

(5 marks)

(c) (i) Describe incomplete dominant

(1 mark)

(ii) Give an example of incomplete dominant by sketheing the genetics inheritance chart.

(6 marks)

- END OF QUESTIONS -