



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2017/2018**

COURSE NAME : BIOLOGY FORMS & FUNCTIONS
COURSE CODE : DAS16103
PROGRAMME CODE : DAU
EXAMINATION DATE : JUNE/ JULY 2018
DURATION : 2 HOURS 30 MINUTES
INSTRUCTION : ANSWER 4 (FOUR) QUESTIONS ONLY

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THIS QUESTION PAPER CONSISTS OF FOUR (4) PAGES

- Q1**
- (a) Explain why glucose is converted to glycogen as energy storage in animal liver. (6 marks)
 - (b) Explain why plants convert glucose to produce starch in order to store carbohydrates. (5 marks)
 - (c) List **five (5)** roles of protein in human body. (10 marks)
 - (d) Describe **one (1)** function of Ribonucleic acid (RNA) and Deoxyribonucleic acid (DNA). (4 marks)
- Q2**
- (a) Water is universal solvent.
 - (i) Discuss the mechanism involved when NaCl powder is added into the water. (6 marks)
 - (ii) Discuss **two (2)** characteristics of water that is important to mammal and aquatic life. (8 marks)
 - (b)
 - (i) Define buffer. (2 marks)
 - (ii) Describe the mechanism of buffer when acid or base is added into the solution. (8 marks)
 - (iii) Give **one (1)** example of buffer in our daily life. (1 marks)
- Q3**
- (a) List the role of each organelles
 - (i) Ribosomes (2 marks)
 - (ii) Mitochondria (2 marks)
 - (iii) Vacuole (2 marks)
 - (iv) Cell Membrane (5 marks)
 - (v) Nucleus (2 marks)
 - (vi) Golgi Bodies (2 marks)

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- (b) Differentiate between plant and animal cell. (6 marks)
- (c) Compare diffusion and osmosis process. (4 marks)
- Q4** (a) (i) Define energy. (1 mark)
- (ii) Energy exists in two types. Give and explain both types. (4 marks)
- (iii) State the type of energy transformation that often occur in a living organisms. (1 mark)
- (iv) Explain the activities in cells that need energy. (2 marks)
- (b) Adenosine triphosphate (ATP) is energy of life.
- (i) Draw the structure of ATP (3 marks)
- (ii) Explain how ATP stores and releases energy in cells. (5 marks)
- (c) (i) Define enzyme. (1 mark)
- (ii) Describe enzyme's structure and active site. (4 marks)
- (iii) Explain the effect of enzyme concentration and substrate concentration to the rate of enzyme reactions. (4 marks)
- Q5** (a) (i) Briefly explain the function of photosynthesis that makes it very important process to the entire life in the earth. (2 marks)
- (ii) Explain the photosynthesis process (10 marks)
- (iii) List and explain **three (3)** factor effecting photosynthesis process. (3 marks)

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(b) (i) Define cell respiration (1 mark)

(ii) Sketch the pathways of aerobic respiration that converts glucose into carbon dioxide and water to produce ATP. State all process involved with its location and products. (9 marks)

Q6 (a) Cell cycle consists of two major parts which is interphase and mitotic phase.

(i) Briefly explain all stages occur in subphase of interphase. (3 marks)

(ii) Sketch and explain all phases in mitotic phase. Assume that $2n$ count of the cells are 4 chromosomes. (18 marks)

(b) Camellia is a codominance flowering plant. The color of the flower is determine by genes carried by the plant. R gene give red color to the flower while W gene give white color to the flower. Sketch the diagram to show if a red Camellia plant and white Camellia plant are breed together. State the color of the flower produced by this interbreed. (4 marks)

- END OF QUESTION -

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