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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2014/2015**

**COURSE NAME : BIOLOGY: FORM AND
FUNCTION**

COURSE CODE : DAS 16103

PROGRAMME : 1 DAU

EXAMINATION DATE : JUNE 2015/ JULY 2015

DURATION : 3 HOURS

**INSTRUCTION : A) ANSWER ALL QUESTIONS
IN PART A**

**B) ANSWER TWO (2)
QUESTIONS ONLY IN
PART B**

THIS QUESTION PAPER CONSISTS OF FOUR (4) PAGES

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PART A

- Q1** (a) Buffers are important element in certain commercial household products. Most buffers consist pair of substance which is an acid and a base.
- (i) Define buffer. (2 marks)
- (ii) Describe the mechanism of buffer when acid or base is added into solution. (6 marks)
- (b) The simplest form of carbohydrates are monosaccharides. When more than two monosaccharides join together, huge polysaccharides such as glycogen and cellulose are formed.
- (i) Explain why glucose is converted to glycogen as energy storage in animal liver. (6 marks)
- (ii) Explain why plants convert glucose to produce starch in order to store carbohydrates. (4 marks)
- (c) Proteins are long chain of amino acids and have various function in our body. List **FIVE (5)** role of protein in human body. (7 marks)
- Q2** (a) Variation in human occurs by different factor. List **SIX (6)** factors which cause variation in human. (9 marks)
- (b) Differentiate meiosis and mitosis process. (6 marks)
- (c) Distinguish normal cell division and cancer cell division (8 marks)
- (d) Discuss the relationship between HIV and AIDS. (2 marks)

PART B

- Q3** (a) Describes the functions of organelles listed below.
- (i) Mitochondria. (2 marks)
 - (ii) Ribosome. (2 marks)
 - (iii) Vacuole. (2 marks)
 - (iv) Golgi Bodies. (2 marks)
 - (v) Endoplasmic Reticulum. (4 marks)
- (b) Explain the differences between plant and animal cell. (6 marks)
- (c) Explain why virus is not a living organism. (4 marks)
- (d) List the properties of life for living organisms. (5 marks)
- Q4** Photosynthesis is a two stage process which is Light Dependent Process and Dark Reaction.
- (a) Describe in details the stages of photosynthesis based on Light Dependent Process and Dark Reaction. (12 marks)
 - (b) Differentiate Light Dependent Process and Dark Reaction. (6 marks)
 - (c) Discuss the differences between fermentation and cellular respiration. (7 marks)

- Q5** (a) The blood type of a father is A, while for the mother is B. Identify and sketches the possibility of blood type of their children. (4 marks)
- (b) Explain why in a population, red-green color blind percentage is higher in males compared to females. (4 marks)
- (c) By using the techniques of genetic engineering, scientists are able to modify the genetic materials so that a particular gene of interest from one cell can be incorporated into a different cell.
- (i) List the procedure involved during the process incorporating gene of interest from one cell into a different cell. (11 marks)
- (ii) Describe an example of how gene transfer and incorporation have been used in biomedical or commercial applications. (6 marks)
- Q6** Water is the universal solvent.
- (a) Discuss the mechanism involved when NaCl powder is added into the water. (6 marks)
- (b) Explain the process involved during hemodialysis of kidney failure patient (8 marks)
- (c) Predict why a person become thirsty after drinking salt water or sea water (3 marks)
- (d) List **FOUR (4)** benefit and **FOUR (4)** application of osmosis process (8 marks)

- END OF QUESTION -