



UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2016/2017**

TERBUKA

COURSE NAME : CELL BIOLOGY
COURSE CODE : BWD 10103
PROGRAMME : BWD
EXAMINATION DATE : DECEMBER 2016/JANUARY 2017
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

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

Q1 Exercises are one of the best ways of reducing the weight and body's fat content.

(a) State **TWO (2)** types of metabolism in exercises.

(2 marks)

(b) Explain how jogging and brisk walking are recommended to reduce body's fat content.

(6 marks)

(c) Relate muscle pain experienced during exercise and metabolism answered in **Q1(a)**.

(12 marks)

Q2 A German biochemist, Franz Knoop proposed that an initial oxidation process occurred on the β carbon of the fatty acid followed by cleavage of the bond between carbon α and β .

(a) State the net reaction for the process of β -oxidation of a saturated fatty acid (palmitoyl-CoA) and number of turns required.

(2 marks)

(b) Explain the steps involve in the process of β -oxidation in saturated fatty acid.

(6 marks)

(c) Discuss how the people who are fasting have the energy to carry out daily activities.

(12 marks)

Q3 Concentrations of LDL appear to be the most effective indicator of heart disease.

(a) State **TWO (2)** significant causes of high LDL levels.

(2 marks)

(b) Describe the condition of atherosclerosis.

(2 marks)

(c) Analyze the action indicated by cholesterol-lowering drugs in order to control the level of blood cholesterol and lipoprotein in blood vessels. Give an appropriate example to support your answer.

(16 marks)

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Q4 In the short time since the first construction and replication of plasmid recombinant DNA in the mid 1970s, many scientific, industrial and medical applications of the new technology have been announced.

(a) Sketch and briefly describe the procedure for constructing recombinant DNA.

(8 marks)

(b) Discuss the applications of recombinant DNA technology based on these following recombinant protein products;

- i. Bovine growth hormone
- ii. Transformation of animal cells

(12 marks)

Q5 The electron-transport chain is composed of several serially ordered components that participate in electron flow. This process is vital for sustaining living things.

(a) Identify and explain the metabolic processes involved in maintaining a proper balance of ATP and ADP under normal physiological conditions.

(10 marks)

(b) Relate the mechanism of oxidative phosphorylation to the body temperature regulation for hibernating mammals.

(10 marks)

-END OF QUESTIONS-