Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2019/2020

COURSE NAME	:	SUSTAINABLE BUILT ENVIRONMENT
COURSE CODE	:	BWJ 30203
PROGRAMME CODE	:	BWW
EXAMINATION DATE	:	DECEMBER 2019 / JANUARY 2020
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

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

Q1 Climate change can be attributed directly or indirectly to human activity. These activities alter the composition of global atmosphere in addition to the natural climate variability.

(a) Give **FOUR (4)** examples of greenhouse gases.

(4 marks)

(b) Describe the effects of climate change on:
(i) Water resources
(ii) Human health
(ii) Food security

(12 marks)

(c) In your opinion, what are some of the adaptation measures that can be taken in response to the impacts of climate change? Give **TWO (2)** examples.

(4 marks)

Q2 Water play an important role in sustaining life. Unsustainable management of water may affect its quality and increased flood risk.

(a) Water quality is the description of the chemical, physical and biological characteristics of water. Imagine yourself working with the Department of Environment (DOE). You are tasked to monitor the water quality of Sungai Muar through chemical monitoring. What are the necessary parameters that need to be measured and how would you present the results?

(14 marks)

(b) Several mitigation steps have been taken in response to flood risk. Analyze some of the challenges that one may come across based on the flood risk response below:
(i) Flood barriers
(ii) Raised building on columns and stilts above the flood water level
(iii) Raised land levels above the flood water level

(6 marks)

Q3 The concept of sustainable cities and communities have long been introduced to ensure the well-being of the community and natural environment as a whole.

(a) Analyze the aspects of a sustainable city. In your opinion, which **ONE (1)** aspect has the biggest contribution towards a city's sustainability? Which **ONE (1)** aspect has the smallest contribution? Justify your answer.

(8 marks)

(b) How would you explain the contribution of Green Building Design in making a city more sustainable?

(4 marks)

(c) Analyze the components of a sustainable communities below. How would you explain these components to describe a sustainable community?

(i) Active, inclusive and safe
(ii) Well designed and built
(iii) Fair for everyone
(iv) Thriving

(8 marks)

Q4 (a) Using the 'cradle-to-grave' analysis approach, analyze the impact of using concrete as a building material.

(10 marks)

(b) Passive design maximizes the use of natural sources of heating, cooling and ventilation to create a comfortable condition inside a building. You are given a task as an architect to design a house that incorporates passive design measures. Draw your design indicating the passive design strategies incorporated.

(10 marks)

Q5 Economic development encourages rapid accumulation of physical, financial and human capital. However, this occurs at the expense of excessive depletion and degradation of natural capital.

(a) Describe the 'Business as Usual' economic model. Evaluate **THREE (3)** long-term impact of this model on the environment.

(5 marks)

(b) The Total Economic Value (TEV) of a natural resource consists of the Instrumental value and the intrinsic value. Compare and contrast these two values with appropriate examples.

(10 marks)

(c) Traditional agricultural practices have low productivity, low value added per worker and highly reliant on extracting soil nutrient. This will lead to growing poverty and social marginalization of farmers. Alternatively, the greening of agriculture might mitigate these problems.

(i) Define the term 'greening agriculture' scenario

(2 marks)

(ii) Demonstrate the **THREE (3)** farming practices and technologies that comply with greening agriculture?

(3 marks)

– **END OF QUESTIONS** –