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Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2018/2019**

COURSE NAME : SUSTAINABILITY IN ARCHITECTURE
COURSE CODE : BFR21103
PROGRAMME CODE : BFF
EXAMINATION DATE : DECEMBER 2018 / JANUARY 2019
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

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

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- Q1** (a) Define the following terms:
- (i) mitigation
 - (ii) sustainability
 - (iii) sustainable design
- (6 marks)
- (b) Climate change is linked to unsustainable human activities and negative effects. Explain **THREE (3)** unsustainable human activities and give example for each negative effect on climate change.
- (9 marks)
- (c) Climate plays a very important role in architecture. Explain **THREE (3)** climatic elements that influence building design.
- (10 marks)
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- Q2** (a) Sustainable building design is an enhanced building standard that promotes environmental protection, health and safety. Discuss how energy efficiency can contribute to achieving sustainable design.
- (6 marks)
- (b) Green roof is one of the important elements in sustainable architecture. Explain with sketches **THREE (3)** green roof strategies that contributes to sustainability in urban area.
- (9 marks)
- (c) Solar passive design strategies emphasize on sun orientation as a major design consideration. Explain with illustrations how external shading devices are used to reduce solar radiation and optimize daylighting.
- (10 marks)
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- Q3** (a) Define and provide sketches on the following terms:
- (i) thermal comfort
 - (ii) rainwater harvesting
- (6 marks)
- (b) Passive design strategies provide thermal and visual comfort by using natural energy sources. Explain and provide sketches how landscape creates micro-climate for building design.
- (9 marks)

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- (c) Propose and design 3-D building spaces, which you think would result in better building performance for indoor thermal comfort. Explain your suggestion with sketches.

(10 marks)

- Q4** (a) Green Building Index was established in Malaysia in 2009 with the aim to assist the building industry towards sustainable development. Explain **SIX (6)** criteria of Green Building Index.

(6 marks)

- (b) There are four green building rating tools found in Malaysia, namely GBI, PH JKR, Green PASS, and GreenRE. With the insights drawn from the comparative review in order to facilitate its implementation in all government projects;

- (i) Discuss the outcome of the study by providing a deep insight into the Malaysian green rating tools.

(9 marks)

- (ii) Propose how do the existing rating tools act as a guidance for both the Public Works Department (PWD) and Construction Industry Development Board (CIDB) in establishing a standardized national green building rating system.

(10 marks)

– END OF QUESTIONS –

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