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Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
(ONLINE)
SEMESTER II
SESSION 2020/2021**

COURSE NAME : SUSTAINABLE CONSTRUCTION
MANAGEMENT
COURSE CODE : MFA 10103
PROGRAMME : MFA
EXAMINATION DATE : JULY 2021
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS
CLOSE BOOK EXAMINATION

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

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- Q1** (a) Traditional design and construction performance criteria focuses on the stipulated budget, time and quality of the construction project. With your knowledge on sustainable, how do you incorporate the sustainable elements in this traditional approach. Your answer can have explanations and sketch. (6 marks)
- (b) Based on your expert opinion, why do many of the construction companies preferred to use traditional way of construction management rather than incorporating sustainable approach in the management. (7 marks)
- (c) As a project manager, please elaborate how the following management functions are supposed to be carried out in the aspect of construction materials and human resources for building a shopping complex.
- (i) Planning (4 marks)
 - (ii) Scheduling (4 marks)
 - (iii) Controlling (4 marks)
- Q2** (a) Operation management is an important element for an organization to achieve its goal. Please explain how the operation management can be conducted to achieve the goal. (7 marks)
- (b) Assets, leverage and liability are three types of management resources. Explain by giving **THREE (3)** examples where each of the resources may change from one type to another. (9 marks)
- (c) Built environment is considered as the most environmental unfriendly human activity because it consumes large amounts of natural resources and produces a lot of pollutants. To achieve sustainable construction, it is very important to balance the basic dimensions of sustainability which are environment, economic and social aspect together. With your current knowledge on sustainable construction, please briefly explain **THREE (3)** approaches in each of the dimensions (9 marks)

- Q3** (a) Green Building Index (GBI) and Green Real Estate (Green RE) are the two prominent green building rating tools that have been developed and introduced over the past few years into Malaysian construction industry. Differentiate them in terms of the following criteria of assessment:
- (i) Energy efficiency (4 marks)
 - (ii) Sustainable site management (4 marks)
 - (iii) Water efficiency (4 marks)
- (b) Building Commissioning (BCx) is a systematic process of ensuring that all building facility systems perform interactively in accordance with the design documentation and intent. Why the following BCx-related documents are important to be developed during pre-design and design stages of a project?
- (i) Commissioning Plan (CP) (3 marks)
 - (ii) Owner's project requirements (OPR) (3 marks)
 - (iii) Basis of Design (BD) (3 marks)
- (c) Describe **TWO (2)** key tasks of Commissioning Specialist (CxS) in building commissioning process. (4 marks)
- Q4** (a) You are given a task to conduct a life cycle cost analysis (LCCA) for demolition of an existing school and construction of a new school on the same site. With suitable examples, explain the following **THREE (3)** cost components to be incorporated into the LCCA of the project,
- (i) Initial investment cost (3 marks)
 - (ii) Replacement costs (3 marks)
 - (iii) Residual value (3 marks)

- (b) Lean construction can be visualised as a flow process combined with conversion activities. Production improvements can be derived by eliminating or reducing flow activities while making conversion activities more efficient. With an aid of diagram, illustrate and define “value adding activities” and “non value adding activities”.
(7 marks)
- (c) Discuss the following aspects of IBS that has the potential of contributing to different aspects of sustainability and green construction,
- (i) Controlled production environment (3 marks)
 - (ii) Waste minimization (3 marks)
 - (iii) Logistics (3 marks)

- **END OF QUESTION** -