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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
(ONLINE)
SEMESTER II
SESSION 2019/2020**

COURSE NAME : SUSTAINABLE CONSTRUCTION
MANAGEMENT

COURSE CODE : BFC32703

PROGRAMME CODE : BFF

EXAMINATION DATE : JULY 2020

DURATION : 6 HOURS

INSTRUCTION : ANSWER ALL QUESTIONS

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

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ANSWER ALL QUESTIONS

- Q1** (a) Material selection is one of the principles in sustainable construction. By using local building material, energy consumption could indirectly be saved especially during transportation process. Besides, the selection of materials should be environmentally friendly and at the same time did not harmful and toxic to the human health. Provide **FIVE (5)** other principles in sustainable construction and suggest an appropriate strategy for each principle. (10 marks)
- (b) You are appointed as project manager to build a condominium in Indera Mahkota, Kuantan, Pahang. Your client instructed you to incorporate ICT element in that project. Therefore, you need to plan and realize the request.
- (i) Suggest how you could integrate ICT in this construction project. (5 marks)
- (ii) Discuss **FIVE (5)** importance of Information and Communication Technology (ICT) application to the project. (10 marks)

Q2 You are an engineer at Maju Trading, Batu Pahat. You are required by your director to prepare a schedule of water tank construction. Activities and details of the project are listed in **Table 1**.

Table 1: Activities involve in the project

No.	Activity Name	Activity ID	Duration (Week)	Predecessor
1	Drill well	A	4	-
2	Deliver material	B	2	-
3	Excavate	C	5	-
4	Power line	D	3	-
5	Pump house	E	3	A
6	Assemble tank	F	4	B
7	Foundation	G	4	C
8	Install pipe	H	6	C
9	Install pump	I	2	C, D, E
10	Erect tower and tank	J	6	F, G

Based on **Table 1**,

- (a) Prepare a logical network diagram using Arrow Diagram Method (ADM), then show the critical activities. (10 marks)

- (b) Calculate ES, EF, LS, LF from the project activities. (10 marks)
- (c) Determine the total float for each activity. (5 marks)

Q3 (a) Quality in construction projects is depending on multiple perspectives of stakeholders.

A tradesperson thinks of work that is complying with best practice, a user will be concerned that things work effectively and feel good, a client will think in terms of value for money, meanwhile an architect sees an attractive design that is also functional. TQM has proved to be a useful management tool in ensuring the achievement of set standard and successful productivity improvements in the construction industry.

- (i) Define the Total Quality Management (TQM). (4 marks)
- (ii) As a construction project manager, explain and relate the **SIX (6)** components in quality management in construction projects. (12 marks)
- (b) The three quality elements of product, process and service are tied together by effective communication between parties and the development of trust and collaborative team behaviour. Good communication and coordination are essential to accomplish the overall goals of the project.
- (i) Describe **FOUR (4)** factors to achieve good communication in construction project. (4 marks)
- (ii) Discuss the implication of poor communication at construction site. (5 marks)

Q4 Building is expected to provide long term service to the occupants. Important to realize, a building starts aging as soon as the construction phase is completed. After a certain period, infrastructure buildings such as airports, transit hub and sports complex may require upgrade to cope with growing population necessities and accommodation of new technologies.

Adaptability can be seen as a sustainability practice by exercising concept of 'reduce, reuse and recycle' in the built environment. It could improve building functionality by such as modifying the existing layout or expanding the size instead of building the new one.

- (a) In your opinion, how building adaptability could contribute towards sustainable built environment?
(6 marks)
- (b) Considering the long-term life-cycle impact of the building material and resources, outline and justify the factors that need to be considered during planning and design phase in order to promote building adaptability.
(9 marks)
- (c) Perhaps the factors in **Q4(b)** could inspire practical approach to elevate the building adaptability. Correspondingly, propose **FIVE (5)** strategies that could be adopted, then explain how they could facilitate future building modification or renovation.
(10 marks)

– END OF QUESTIONS –