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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESI 2022/2023**

COURSE NAME : SUSTAINABLE CONSTRUCTION
MANAGEMENT

COURSE CODE : BFC 32703

PROGRAMME CODE : BFF

EXAMINATION DATE : FEBRUARY 2023

DURATION : 3 HOURS

INSTRUCTION

1. ANSWER ALL QUESTIONS.
2. THIS FINAL EXAMINATION IS CONDUCTED VIA **CLOSED BOOK**.

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3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK.

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

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- Q1** (a) A Pre-Construction Condition Survey for the proposed mix development project consisting of offices, shop lots, and public amenities on Lot 3734, Lot 3735 and Lot 3736 Wilayah Persekutuan Kuala Lumpur has been conducted for Azcon Sdn. Bhd. The proposed project's location is a hilly area, 20 km from the city centre and 5 km from a residential area. Describe **FIVE (5)** examples of reactive and proactive measures for handling possible pollutants caused by the construction project.
(10 marks)
- (b) Malaysia's government, through the Construction Industry Development Board (CIDB), has initiated the Construction 4.0 Strategic Plan (2021-2025). One of the core values of Construction 4.0 is Sustainability and Resiliency. Elaborate **FIVE (5)** actions that the construction industry player can take to achieve the government objectives in sustainability.
(10 marks)
- (c) The application of Building Information Modeling (BIM) is expanding in construction industry. While BIM is mostly associated with design and preconstruction, it absolutely benefits every phase of the project life-cycle, even after building is complete. Justify how BIM could help architects and consultants ensure the construction project runs more efficiently.
(5 marks)
- Q2** (a) An organization is a group of people with different knowledge and scientific backgrounds working toward a common goal. Effective organization requires strength in leadership, decision-making, people, work process and culture. Particularly in a construction project, describe in detail **FIVE (5)** management functions in organizational approach.
(15 marks)
- (b) In construction project management, a large amount of project information is generated and used during the various stages in the project phase, such as planning, designing, constructing, organizing, monitoring, and operating. The usage of information and communication technology (ICT) could facilitate massive information transfer within teamwork in a particular project more effectively. However, reluctance to invest and learn as well as lack of exposure to ICT adoption guidance made its application in construction industry lag behind. As a project engineer, explain **FIVE (5)** importance of ICT that can convince your project manager to invest in ICT-related training and devices for the construction project.
(10 marks)
- Q3** (a) Construction planning and scheduling is an important process that needs to take place during the construction of the project. Differentiate planning and scheduling.
(4 marks)

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- (b) As an engineer in ABC construction firm, you have been assigned by the project manager to perform planning and scheduling for a construction project with all its related activities.
- (i) By referring to **TABLE 1**, construct a network diagram using the precedence diagram method to determine the total duration of the project. Provide a table showing the early start (ES), early finish (EF), late start (LS) and late finish (LF) for each activity. (14 marks)
- (ii) Highlight the critical path in the network diagram. (2 marks)
- (iii) Prepare a Gantt chart for this project according to the findings in **Q3(b)(i)** and **Q3(b)(ii)**. (5 marks)
- Q4 (a)** Total Quality Management (TQM) is a concept that strives to continually improve an organization's ability to attain quality and deliver the intended output to the client. In the construction industry, total quality management ensures both quality and productivity. Adapting principles from manufacturing industry, the one-off nature of construction projects somehow makes its implementation challenging. For TQM to work in construction, lessons learnt must be taken to the next project and, if possible, the same core team used. Explain **FOUR (4)** of the TQM principles. (8 marks)
- (b) QLASSIC is a quality assessment system on the quality of workmanship of construction works. It has also been used as a criterion to evaluate the performance of contractors based on quality of workmanship.
- (i) List **THREE (3)** examples of assessment activity in QLASSIC. (6 marks)
- (ii) The principle of QLASSIC encourages contractors to "Do things right the first time and every time". From that statement, justify how QLASSIC assessment could contribute to construction sustainability. (6 marks)
- (c) Since the country faced the Covid-19 pandemic in 2020, various restriction movements have been enforced to control the spread of the virus. This situation causes the working nature changed dramatically. In your opinion, during that period, how efficiency of communication should be managed to ensure that project work progress can run effectively. (5 marks)

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– END OF QUESTIONS –

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TABLE 1

| No | Activity | Duration (day) | Predecessor |
|----|----------|----------------|-----------------------|
| 1 | A | 1 | START |
| 2 | B | 5 | A |
| 3 | C | 3 | A |
| 4 | D | 2 | A (SS+2) |
| 5 | E | 2 | B, C (FS+3) |
| 6 | F | 5 | D |
| 7 | G | 4 | C (FS+2), F (FF+3) |
| 8 | H | 3 | E |
| 9 | I | 4 | F |
| 10 | J | 2 | H, G (FS+4), I (FF+5) |

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