



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2023/2024**

- COURSE NAME : CONSTRUCTION ENGINEERING
TECHNOLOGY AND MANAGEMENT
- COURSE CODE : BNP 21103
- PROGRAMME CODE : BNA/ BNB/ BNC
- EXAMINATION DATE : JULY 2024
- DURATION : 3 HOURS
- INSTRUCTIONS :
1. ANSWER ALL QUESTIONS
 2. THIS FINAL EXAMINATION IS CONDUCTED VIA
 Open book
 Closed book
 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 FIVE (5) PAGES

Q1 Consider you are part of a project management team tasked with the construction of a new community centre in an urban area prone to heavy traffic and limited space availability. This project requires careful planning and execution to mitigate potential challenges and ensure the timely and efficient completion of the building. The construction process will be overseen by a specialized team, each member playing a crucial role throughout different phases of the Construction Life Cycle (CLC).

- (a) Identify and categorize the phases involved in the construction life cycle (CLC).
(5 marks)
- (b) Detailed description of each phase in the CLC.
(7 marks)
- (c) Roles and responsibilities within the construction team for each CLC Phase.
(7 marks)
- (d) Discuss how these phases are interrelated in the context of successful project completion.
(6 marks)

Q2 (a) Explain **FIVE (5)** criteria on how the foundation are designed.
(5 marks)

- (b) The success of the design and building depends on the foundation design, total load and soil load bearing capacity. Differentiate between the shallow foundation and deep foundation.
(12 marks)

- (e) Your company has been appointed as a geotechnical consultant for commercial development at Tanjung Karang, Selangor. The site investigation reveals that the majority of the soil in the construction area is composed of unsuitable materials, such as peat soil, which possess a very low bearing capacity and are highly susceptible to shrinkage. The predominantly clayey soils require thorough assessment to determine the necessity of a pile foundation. Investigate **FOUR (4)** consideration factors in the selection of pile.
(8 marks)

- Q3** (a) State **THREE (3)** formwork principles.
(3 marks)
- (b) Briefly explain the difference between supported scaffolds and suspended scaffolds.
(4 marks)
- (c) The water supply system in the building is divided into two, namely the indirect system and the direct system. Explain the difference between these two systems.
(4 marks)
- (d) A community hall (*balairaya*) that can accommodate 100 people will be built in Kampung Raja, Pagoh, Muar, Johor. You are asked to suggest and describe the type of sewerage system that is suitable for the community hall.
(6 marks)
- (e) The development of a housing estate can sometimes lead to flooding in the surrounding areas. Discuss the cause of this situation and the preventative measures that should be implemented
(8 marks)
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- Q4** (a) State **THREE (3)** elements that need to be controlled in management to ensure maximum profit in a project.
(3 marks)
- (b) Explain **TWO (2)** important elements in project management.
(4 marks)
- (c) Maju Jaya Construction has secured construction projects for terrace houses, valued at RM15 million. As a technologist in the company, you are tasked with proposing an organizational chart suitable for the project. Please provide your suggestions in the form of a chart, along with justifications for your choice of chart.
(6 marks)

- (d) A list of activities that are required to complete a project is shown in **Table Q4(d)**. Based on the **Table Q4(d)** in Appendix A;
- (i) Develop an arrow diagram for the project complete with their Early Start (ES) and Early Finish (EF) for each activity. (9 marks)
- (ii) Evaluate the total float for activity G and J. (3 marks)

- END OF QUESTIONS -

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APPENDIX A

Table Q4(d)

Item	Activity	Duration (day)	Predecessor
1	A	2	-
2	B	3	A
3	C	4	A
4	D	2	A
5	E	3	B
6	F	2	C
7	G	3	D
8	H	4	C,E
9	I	2	F,G
10	J	3	G
11	K	1	H,I,J

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