

SULIT

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Second Semester Examination  
2020/2021 Academic Session

July/August 2021

**EAA484 – Building Construction and Technology**

Duration : 1 hour

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Please ensure that this examination paper contains **FOUR (4)** printed pages before you begin the examination.

**Instructions:** This paper contains **TWO (2)** questions. Answer **ALL** questions.

All questions **MUST BE** answered on a new page.

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SULIT

1. (a). In a construction project, site preparation, material installation and defect checking are important processes which need to be performed in a specified timeframe.
- (i). From the beginning, earthwork in construction site usually takes a long time to be completed. Based on the information given in **Table 1**, calculate the number of days and number of haulage vehicles that are required to ensure the excavator is fully utilised.

**Table 1**

Net volume of excavation for ONE (1) site	9850 m <sup>3</sup>
Bucket capacity	1 m <sup>3</sup>
Optimum output	70 bucket per hour
Task efficiency factor	0.65
Operator efficiency factor	90%
Swelling potential of earth material	20%
Working hour	8 hours per day including 1/2-hour maintenance time
Round trip time	50 minutes and loading time 10 minutes

[20 marks]

- (ii). If the net volume excavated is increased to 5 sites and the management of a project has requested you to reduce the time, propose a plan that is practical to be implemented and give your justification on this choice.

[5 marks]

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(b). Upon completion of site work and superstructure, the installation process will take place and among the important building components to be installed are water cistern and house drainage system.

(i). Describe **ONE (1)** possibility that can happen if a float valve in the cistern of a house is not functioning properly.

[1 mark]

(ii). There is a difference between floor trap, gully trap, grease trap and intercepting traps. Explain each one of them in terms of their definitions and usage. Answer your question in a tabular form.

[8 marks]

(iii). Several types of testing to check water tightness and leaking joint can be implemented on the drain and pipes of a house. Explain **FOUR (4)** methods for testing water tightness and leaking joint.

[16 marks]

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2. (a). “There are similarities and differences between various methods of construction involving steel framing, reinforced concrete, timber framing and masonry”

(i). Discuss the similarities and differences of these methods as given by the statement above in terms of construction sequence for a single storey bungalow house. Answer your question in a tabular form.

[20 marks]

(ii). As a contractor, select **ONE (1)** method and provide **TWO (2)** precautions that you will take if you are constructing a bungalow house at the beach area.

[5 marks]

(b). Industrialized Building Systems (IBS) is also known as prefabrication and it standardizes the design process of building projects, while digitizing, automating and modernizing the processes of construction and building parts production.

(i). The real challenge in IBS focuses on ensuring a working environment and processes that are suited to automation. Explain the implications of automation in relation to IBS technology adoption in the construction industry.

[15 marks]

(ii). Based on your understanding on IBS, by giving relevant justifications, evaluate this statement: “Prefabricated homes and modular homes are the same things”.

[10 marks]

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