



UTHM

Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2018/2019**

COURSE NAME : CONSTRUCTION TECHNOLOGY III
COURSE CODE : BPD 24503
PROGRAMME CODE : BPC
EXAMINATION DATE : DECEMBER 2018 / JANUARY 2019
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

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THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

- Q1** (a) Sustainable construction (also known as green construction or sustainable building) refers to a structure, the construction process and occupancy processes that are environmentally responsible and resource efficient throughout a building's life-cycle from location to design, construction, operation, maintenance, renovation, and demolition.

Explain **THREE (3)** concepts of sustainable construction.

(9 marks)

- (b) Green buildings are designed to save energy and resources, recycle materials usage and minimise the emission of toxic substances throughout the construction lifecycle.

Discuss **ALL** Green Building Index (GBI) application criteria for green building classification.

(16 marks)

- Q2** (a) Industrialised Building System (IBS) is a construction process that utilises techniques, products, components, or building systems which involved prefabricated components and on-site installation.

- (i) List **FIVE (5)** IBS groups.

(5 marks)

- (ii) Explain **FOUR (4)** benefits of precast concrete.

(8 marks)

- (b) The Industrialised Building System (IBS) Roadmap 2011-2015 that was published by the Construction Industry Development Board (CIDB) outlines several well-thought strategies and aggressive steps to impose high level intended outcomes of implementing IBS.

Analyse with examples, **FOUR (4)** pillars to aggressively promote IBS usage in Malaysia.

(12 marks)

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Q3 Figure Q3 illustrates the significance of Building Information Modelling (BIM) adoption in designing companies. BIM application can influence the design method and expedite work to be more systematic and efficient. However, some of the challenges to implement BIM are lacking of readiness, human resource factors, less of knowledge, high costs and technology equipment, legal issue and coordination between stakeholders and industry players in term of documentation and data information.

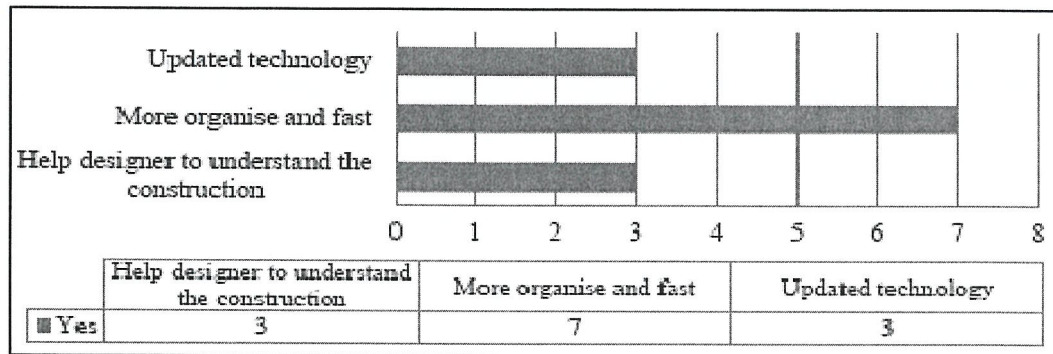


Figure Q3: Significance of BIM adoption in designing companies

(Source: Abd Hamid et al., 2018)

- (a) State **FIVE (5)** types of Level of Development (LOD) in BIM. (5 marks)
- (b) Outline on how BIM could save owner’s time and money throughout the building construction lifecycle. (20 marks)

Q4 A Building Automation System (BAS) should reduce building energy and maintenance costs if compared to a non-BAS building. Therefore, most of commercial, institutional, and industrial buildings built after 2000s include a BAS. Likewise, many of older buildings have been retrofitted with a new BAS by their current owners.

- (a) List **FIVE (5)** types of BAS in a typical high rise building in Malaysia. (5 marks)
- (b) Outline **FIVE (5)** methods that BAS could reduce building energy and maintenance costs in a building operation phase. (20 marks)

-END OF QUESTIONS-

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