

## UNIVERSITI TUN HUSSEIN ONN MALAYSIA

## **FINAL EXAMINATION** SEMESTER I **SESSION 2016/2017**

COURSE NAME : INDUSTRIALIZED BUILDING SYSTEM

COURSE CODE

: BNC 40903

**PROGRAMME** 

: BNC

EXAMINATION DATE : DECEMBER 2016 / JANUARY 2017

**DURATION** 

: 3 HOURS

INSTRUCTION

: ANSWER ALL QUESTIONS



THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES

QI	(a)	Explain in timeline, the history of IBS development in Malaysia.	(5 marks)
	(b)	Describe FIVE (5) benefits of IBS	(5 marks)
	(c)	Discuss the role of CIDB in IBS implementation in Malaysia	(5 marks)
	(e)	Exhibit the differerences between IBS system and conventional construction.	(10 marks)
Q2	(a)	Explain, what is Precast Concrete System	(6 marks)
	(b)	Explain on each item below  (i) Skeletal Structure  (ii) Facades  (iii) Corbels	(9 marks)
	(c)	Demonstrate the construction process of Precast Concrete	(10 marks)
Q3	(a)	Discuss THREE (3) materials use in Steel Frame System	(9 marks)
	(b)	Explain TWO (2) types of Steel Framing System	(9 marks)
	(c)	Explain in detail what is Rivet. Sketch the Riveting process.	(7 marks)
Q4	(a)	Explain on Block Work System below:  (i) Dry Cast  (ii) Wet Cast  TERBUKA	(6 marks)
	(b)	Discuss in detail type of Concrete Block below:  (i) Lightweight Concrete Block  (ii) Interlocking Concrete Block	(0 1
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- (c) Sketch and explain on the pattern finish below
  - (i) Running Bond
  - (ii) Stack Bond
  - (iii) Basket Weave
  - (iv) Half and Full Basket Weave

(11 marks)

Q5 (a) Explain definition of IBS Scoring System

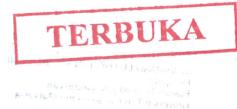
(5 marks)

(b) Base on information below, Evaluate the IBS Score for the project.

	Item	Description
1	Construction area for Ground Level	$120 \text{ m}^2$
	Construction area for Level 1	120 m <sup>2</sup>
	Construction area for Roof	120 m <sup>2</sup>
2	Structure System	
	Beam	Precast Concrete Beam
	Column	Cast-insitu concrete using steel formwork
	Floor	Half Precast floor
	Roof Trusses	Pre-made Timber Roof Trusses
3	Wall System	
	Internal Wall	Precast Concrete Panel
	External Wall	Block system
4		
	Beam	60% according to MS 1064 Part 10
	Column	100% according to MS 1064 Part 10
	Wall & Floor	Less 50% according to MS 1064 Part 10
	Door	Less 80% according to MS 1064 Part 4
	Window	0% according to MS 1064 Part 5
	Repetition on horizontal structure	100%
	Others (Precast / Construction solution)	-nil-

- (i) Calculate the IBS Score for Structure Element
- (ii) Calculate the IBS Score for Wall System
- (iii) Calculate the IBS Score for Other Simplified Construction Solution
- (iv) Total IBS Score

(20 marks)



- END OF QUESTION -