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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

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

COURSE NAME : OPERATION & MAINTENANCE
MANAGEMENT

COURSE CODE : BNB 31303

PROGRAMME CODE : BNB

EXAMINATION DATE : DECEMBER 2018 / JANUARY 2019

DURATION : 3 HOURS

INSTRUCTION : ANSWER ALL QUESTIONS

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THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES

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Q1 Building maintenance is defined as “work” in order to keep, restore or improve every part of a building, to maintain the performance of building fabric and its services and surrounds, to accepted standard and to sustain the utility and value of the building.

(a) List **FIVE (5)** purpose of building maintenance.

(5 marks)

(b) Malaysian building maintenance industry is experiencing growth and becoming a major contributor to the economy. Discuss the issues and challenges of the building maintenance industry in Malaysia.

(8 marks)

(c) In order to repair or replace a building component depends on several considerations which include downtime, operating cost, net present value and multiple repairs or single replacement.

Using a table, distinguish reasons why a 17 years old shingle roof component needed to be either repair or replaced.

(8 marks)

(d) List and compare the types of maintenance management.

(4 marks)

Q2 (a) Show the goals of comprehensive facilities maintenance.

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(6 marks)

(b) Strategic planning of the maintenance activities in manufacturing industries holds great potential to increase productivity. Illustrate a typical maintenance activity planning.

(13 marks)

(c) There is considerable scope for improving sustainability in buildings by adopting changes and improvement to the building maintenance processes. Describe the key principles of sustainable building maintenance.

(6 marks)

Q3 (a) A comprehensive quality management system is required to manage the building. Organize the methods, activities and deliverables for a quality management system.

(8 marks)

(b) In a maintenance department, there are several functions that makes the department runs smoothly. Using a table, classify **TWO (2)** other functions in a maintenance department.

(10 marks)

(c) Design a strategic management procedure that addresses a comprehensive building operation and maintenance program.

(7 marks)

Q4 (a) Building surveys are generally undertaken to help property owners understand the condition of a property, recording risks and potential expenditure that may be required, enabling them to develop the appropriate remedial or maintenance plans.

(i) While all buildings may benefit from a building survey, list **FIVE (5)** of the most appropriate typical type for a building survey.

(5 marks)

(ii) The most common aims of a building survey might include documenting the present condition of the property, highlighting areas of failure or concern. Provide at least **THREE (3)** other aims of a building survey.

(3 marks)

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(b) Table Q4(b) shows schedule of building condition using CSP1 Matrix. The location of the survey is at a school toilet in SK Taman Paya Redan, Pagoh.

No.	Area	Defects	Condition Survey Protocol (CSP 1)				
			Condition Assessment (a)	Priority Assessment (b)	Matrix Analysis (c)	Photo No. / (Sketch No.)	Defect Plan Tag
1.	Exterior	Tap Completely broken	4	(i)	16	1	1
2.		Door Have no lock	(ii)	2	6	2	2
3.		Hand Dryer Not properly affixed to wall	1	(iii)	2	3	3
4.		Toilet Bowl Cracked	(iv)	2	8	4	4
5.		Water tank Leaking	3	4	(v)	5	5
6.		Sink Crooked	2	(vi)	8	6	6
7.		Lamp Fluorescent lamp does not function	3	4	(vii)	7	7
8.		Water closet Flush does not function	(viii)	2	6	8	8
Total Marks (d)							
Number of Defects (e)					8		
Total Score (f)							

- (i) Based on the table above, calculate and provide the answers for (i) to (viii) in the condition and priority assessment. (8 marks)
- (ii) Calculate the total marks (d) and the total score (f) (2 marks)

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- (iii) According to the overall building ratings schedule provided in **Table Q4(b)(iii)**, determine; the final building rating and score

Table Q4(b)(iii): Overall Building Ratings

No.	Building Rating	Score
1.	Good	1 to 4
2.	Fair	5 to 12
3.	Dilapidated	13 o 20

(2 marks)

- (iv) **Table Q4(b)(iv)** shows the descriptive value according to score.

Table Q4(b)(iv): Descriptive value according to score

No.	Matrix	Score
1.	Planned Maintenance	1 to 4
2.	Condition Monitoring	5 to 12
3.	Serious Attention	13 to 20

Determine the action (Matrix) based on the score in **Q4(b)(iv)**

(2 mark)

- (c) Defects can be found in new buildings due to error in construction and poor workmanship. Elaborate **THREE (3)** types of defects that can be found in Pagoh Edu Hub.

(3 marks)

-END OF QUESTIONS -

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