



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2019/2020**

COURSE NAME : OPERATION & MAINTENANCE
MANAGEMENT

COURSE CODE : BNB 31303

PROGRAMME CODE : BNB

EXAMINATION DATE : DECEMBER 2019 / JANUARY 2020

DURATION : 2 HOURS 30 MINUTES

INSTRUCTION : ANSWER **ALL** QUESTIONS

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THIS QUESTION PAPER CONSISTS OF **SIX (6)** PAGES

Q1 Building repairs and maintenance services mainly includes works undertaken for maintaining proper condition of buildings, its services and works in ordinary use.

- (a) State **TWO (2)** types of building repair. (2 marks)
- (b) There are **FOUR (4)** type of issues needed to be considered when making a decision on whether to repair or replace a building component. Elaborate all of them. (8 marks)
- (c) If multiple pieces of equipment or systems in a building broke down at once, determine how to prioritize the work orders. (3 marks)
- (d) Identify **TWO (2)** disadvantages of Planned Corrective Maintenance. (4 marks)
- (e) In a diagram, sketch the categories of maintenance. (8 marks)

Q2 Maintenance is a process of ensuring that buildings and other assets retain a good appearance and operate at optimum efficiency. Inadequate maintenance can result in decay, degradation and reduced performance and can affect health and threaten the safety of users, occupants and others in the vicinity.

- (a) The maintenance department is responsible and accountable for maintenance work. It is responsible for the way equipment runs and looks and for the costs to achieve the required level of performance. Explain the function of a maintenance department in terms of advisory function, organizational function and operational function. (9 marks)
- (b) Discuss the definition of MMS – Maintenance Management System (MMS) and Computerized Maintenance Management System (CMMS). (6 marks)
- (c) Maintenance workflow is a step-by-step process that gets initiated by some trigger event to the point where the action is closed out.
 - (i) Identify **FOUR (4)** types of maintenance work flow (4 marks)
 - (ii) Classify the maintenance work flow with location indication of non-routine work flow, routine work flow and unplanned jobs in the flow. (6 marks)

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- Q3** Building surveys are a means of providing a detailed evaluation of a property's condition and involve an extensive inspection.
- (a) Explain the needs to these types of survey.
- (i) Valuation
 - (ii) Habitat Survey
 - (iii) Tree Hazard Survey
- (3 marks)
- (b) A listed building is also considered a building survey. Elaborate what is a listed building and provide **ONE (1)** example of a listed building.
- (4 marks)
- (c) **Table Q3 (a)** shows a Schedule of Building Condition (CSP1 Matrix). Identify the values for the Matrix Analysis **(i) to (viii)** for each building defects.
- (8 marks)
- (d) According to **Table Q3 (a)** Schedule of Building Condition (CSP1 Matrix), calculate;
- (i) The total marks **(d)** and;
 - (ii) The total score **(f)**
- (6 marks)
- (e) According to the overall building ratings schedule provided in **Table Q3 (c)**, determine;
- (i) The final building rating and;
 - (ii) Score
- (2 marks)
- (f) Classify **TWO (2)** objectives of CSP1 Building Condition Survey.
- (2 marks)

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- Q4** Construction defects are always the key concern of the construction industry. Different constructed facilities generate different types of defects and demands different levels and types of quality depending on the function, system, types and material used. Various systems have been designed to eliminate defects during construction operation.
- (a) List **FOUR (4)** causes of building defects. (4 marks)
- (b) Owner of a building has decided to renovate his new house, but he found that the house has a few defects.
- (i) Classify the types of defect as shown in the **Table Q4 (b)**. (4 marks)
- (ii) Identify causes of defects as answered in **Q4 (b) (i)**. (8 marks)
- (c) To prevent defects on building, it depends on the work method of each stages of the project. Point out **THREE (3)** stages project that are involved to prevent defect on building and elaborate. (9 marks)

– END OF QUESTIONS –

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Table Q3 (a): Building Condition Assessment

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.	Pantry	Sink: Leaking	(i)	4	12	1	1
2.		Sink Tap: Leaking faucet	3	(ii)	12	2	2
3.		Door Hinges: the hinges are sagging and the door will not close	3	3	(iii)	3	3
4.		Window Hinges: Stiff window hinge	1	(iv)	2	4	4
5.		Main Light: Does not light up	(v)	3	6	5	5
6.		Ceiling: 1 portion of cracked ceiling	2	(vi)	6	6	6
7.		Air conditioning: Leaking and mold buildup	4	4	(vii)	7	7
8.		13A Socket outlet switch: Does not work	2	(viii)	6	8	8
Total Marks (d)							
Number of Defects (e)			8				
Total Score (f)							

Table Q3 (c): Overall Building Ratings

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

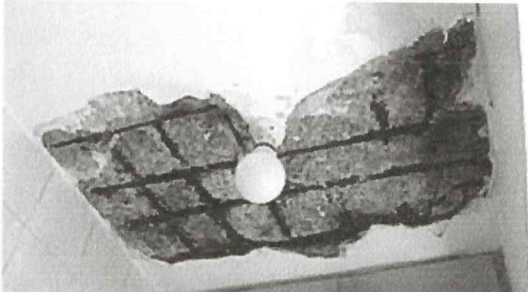
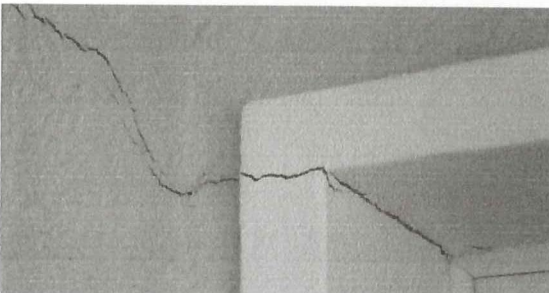
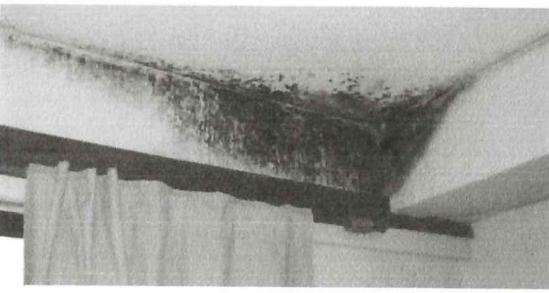
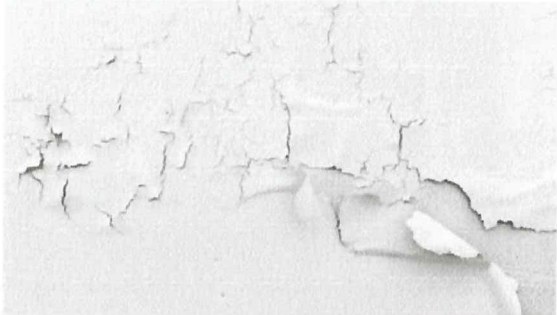
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Table Q4 (b): Defect of Building

No.	Picture
a.	
b.	
c.	
d.	

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