



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

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

COURSE NAME : BUILDING SERVICES AUDIT &
INSPECTION

COURSE CODE : BNB 41203

PROGRAMME : 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 **THREE (3)** PAGES

- Q1** (a) *“Structural cracks deserve immediate attention. They indicate that the structure of the building, or at least a part of it, is overstressed. A structure, when stresses beyond its capacity, may collapse without further warning signs.”*
As a building professional, suggest **FIVE (5)** steps to be taken when such cracks suddenly develop, or appear to widen or to spread.
(10 marks)
- (b) Most of the mechanical components of the building services installations such as air-conditioning systems have a relatively shorter life span than the building structure. Defects in air-conditioning components usually lead to failure requiring repair or servicing. It is therefore necessary to have a planned schedule for foreseeable servicing and replacement for components. Identifying the symptoms of a malfunction can prevent the sudden breakdown of services that cause undesirable or even catastrophic consequences. Predict the best possible causes why it might happen for each symptom below:
- (i) Symptom 1: Not cool enough, nor warm enough
 - (ii) Symptom 2: Noisy, no air movement
 - (iii) Symptom 3: Poor indoor air quality
 - (iv) Symptom 4: Dripping and substandard output of cool or warm air
 - (v) Symptom 5: Noisy blowers or propellers movement
- (10 marks)
- (c) Briefly discuss **FIVE (5)** common defects encountered in newly completed buildings.
(5 marks)
- Q2** (a) Differentiate between functional inspection and conditional inspection for mechanical system.
(4 marks)
- (b) Explain in detail the influence of audit and inspection on cost effectiveness of operations.
(6 marks)

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- (c) Retrofitting project refers to the addition of new technology or features to older systems focusing on increased energy efficiency in the building. One of existing water cooled chiller need to be replaced with new high efficiency water cooled chiller which located inside the chiller plant at the top of 5 stories building. Analyze **FIVE (5)** elements for survey and inspection need to perform for the replacement new high efficiency water cooled chiller.

(15 marks)

- Q3** (a) List **TWO (2)** inspections of electrical motor that can be performed online and non-online.

(4 marks)

- (b) There are many reasons behind the necessity of getting an electrical inspection done. In brief, state **THREE (3)** reasons.

(6 marks)

- (c) Condensation is the common issue in Malaysia can damage building property even the electrical components can be tripped. Suggest **FIVE (5)** ways to overcome the condensation issue if the condensation occurs in one of the office room which consist of centralized air conditioning.

(15 marks)

- Q4** (a) Total Quality Management (TQM) and Total Productive Maintenance (TPM) are often used interchangeably. However, TQM and TPM share a lot of similarities, but are considered as two different approaches in the official literature. Discuss on how TQM and TPM can both result in an increase of service and quality of a building.

(10 marks)

- (b) Inspection of building damages can be as simple as a recording visual condition of the structure or a more complicated one. For example, a forensic study of an incident or catastrophe in order to find out about the origin and nature of deterioration and degradation. With the aid of diagram, describe the steps in the assessment procedure for evaluate damages in a building.

TERBUKA (15 marks)

-END OF QUESTIONS-

TABLE OF SPECIFICATION (TOS) of FINAL EXAMINATION

COURSE CODE: BNB 41203
SEMESTER: I

NAME OF COURSE: Building Services Audit & Inspection
SESSION: 2019 / 2020

CLO (Cognitive): 1. Classify the importance of optimum and effective performance of building. (PLO1, C4)

C4 PLO1

4. Demonstrate building audit and inspection and apply procedure, tools and equipment using techniques used in building investigation (PLO 10, C4)

C4 PLO10

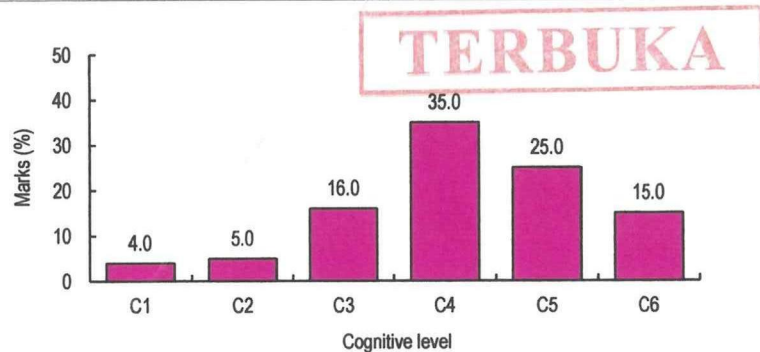
| Question Numbers | COURSE CONTENT / TOPICS | COGNITIVE LEVEL BASED ON BLOOM'S TAXONOMY | | | | | | Total (%) |
|------------------|--|---|---------------|-------------|----------|------------|----------|-----------|
| | | Knowledge | Comprehension | Application | Analysis | Evaluation | Creating | |
| Q1 (**) | (a) suggest the best steps to be taken when such cracks sudd | | | 10 | | | | 25 |
| | (b) For each symptom below, suggest the best possible cause | | | | | 10 | | |
| | (c) Discuss FIVE (5) common defects encountered in newly c | | 5 | | | | | |
| | (d) | | | | | | | |
| | (e) | | | | | | | |
| Q2 (**) | (a) Differentiate between functional inspection and conditiona | | | | 4 | | | 25 |
| | (b) Explain the influence of audit and inspection on cost effec | | | | 6 | | | |
| | (c) Analyze the survey and inspection need to perform for the | | | | 15 | | | |
| | (d) | | | | | | | |
| Q3 (**) | (a) List Two (2) inspections of electrical motor that can be per | 4 | | | | | | 25 |
| | (b) There are many reasons behind the necessity of getting a | | | 6 | | | | |
| | (c) Suggest ways to overcome the condensation issue if cond | | | | | 15 | | |
| | (d) | | | | | | | |
| Q4 | (a) Discuss on how TQM and TPM can both result in an incre | | | | 10 | | | 25 |
| | (b) Describe the steps in the assessment procedure for evalu | | | | | | 15 | |
| | (c) | | | | | | | |
| | (d) | | | | | | | |
| | (e) | | | | | | | |
| Q5 | (a) | | | | | | | 0 |
| | (b) | | | | | | | |
| | (c) | | | | | | | |
| | (d) | | | | | | | |
| | (e) | | | | | | | |
| Q6 | (a) | | | | | | | 0 |
| | (b) | | | | | | | |
| | (c) | | | | | | | |
| | (d) | | | | | | | |
| | (e) | | | | | | | |
| TOTAL MARKS | | 4.0 | 5.0 | 16.0 | 35.0 | 25.0 | 15.0 | |
| PERCENTAGE (%) | | 4.0 | 5.0 | 16.0 | 35.0 | 25.0 | 15.0 | |

Note: This form can be modified to suit your needs or any requirement. *Strikethrough where appropriate.

**Compulsory questions

*Check-These are the marks distribution in the course TOS:

| Level | % |
|-------|------|
| C1 | 4.0 |
| C2 | 5.0 |
| C3 | 16.0 |
| C4 | 35.0 |
| C5 | 25.0 |
| C6 | 15.0 |
| Total | 100 |



Name of Course Coordinator:

Sr. Ts. Dr. MOHAMMAD ASHRAF BIN ABDUL RAHMAN

Signature:

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Date:

24 October 2019