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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2017/2018**

COURSE NAME : BUILDING SERVICES &
MAINTENANCE

COURSE CODE : BPE 33802

PROGRAMME CODE : BPD

EXAMINATION DATE : DECEMBER 2017/ JANUARY 2018

DURATION : 2 HOURS

INSTRUCTION : ANSWER ALL QUESTIONS

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

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Q1 The prime objective of a maintenance management strategy is to achieve the optimum balance between equipment performance, availability and the cost of maintenance.

(a) Differentiate between strategic and tactical maintenance. (10 marks)

(b) Discuss **THREE (3)** types of maintenance strategies. (15 marks)

Q2 Failures and defects are common phenomena in construction industry. Building defects arise due to inappropriate or poor design, use of sub-standard materials and workmanship as well as insufficient attention given to building maintenance.

(a) Explain the following factors that contribute to building defects. (15 marks)

- (i) Design
- (ii) Sub-standard workmanship
- (iii) Adverse surrounding environment

(b) Differentiate between hairline cracks and structural cracks. (5 marks)

(c) Discuss rectification works for both types of cracks mentioned in **Q2(b)** above. (5 marks)

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Q3 Fire safety planning normally involves several important aspects for designer's consideration.

(a) Discuss **THREE (3)** most important aspects to be considered for fire safety planning.

(15 marks)

(b) Elaborate **TWO (2)** aspects of site planning of buildings, which are considered in passive firefighting.

(10 marks)

Q4 Natural ventilation is increasingly being used in modern public buildings to minimise the consumption of non-renewable energy. It is an effective measure to improve indoor air quality.

(a) Describe the principles of air movement.

(5 marks)

(b) Discuss **FIVE (5)** factors to be considered when designing natural ventilation provision for buildings.

(10 marks)

(c) Explain, with the aid of a sketch, the natural ventilation, which is formed by the combination of wind, and stack effect.

(10 marks)

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- END OF QUESTIONS -