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Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

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

COURSE NAME : BUILDING CONSTRUCTION 1
(MATERIAL AND CONSTRUCTION)

COURSE CODE : BFR 21203

PROGRAMME CODE : BFR

EXAMINATION DATE : DECEMBER 2019/ JANUARY 2020

DURATION : 3 HOURS

INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

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- Q1**
- (a) Give **TWO (2)** examples of different type of aggregates. Describe the practical use for these aggregate in making concrete. (3 marks)
 - (b) Explain the following term on aggregate:
 - (i) Maximum size of aggregate (2 marks)
 - (ii) Nominal maximum size of aggregate (2 marks)
 - (c) List **TWO (2)** requirements for the maximum aggregate size. (4 marks)
 - (d) Identify the most ideal size of the nominal maximum size of aggregate. (6 marks)
 - (e) Imagine that you are involve in each scenario provided below.
 - (i) Suppose you were in charge of building a skyscraper. Identify which type of aggregate would be the choice of yours and explain why it is being selected? (4 marks)
 - (ii) Suppose you were to be the chief designer in charge of building a concrete ship to carry people overseas. Identify which type of aggregate would be the choice of yours for the concrete and explain why it is being selected. (4 marks)
- Q2**
- (a) State the difference between cement and concrete. (2 marks)
 - (b) Describe the major ingredients for concrete and the role they play. (6 marks)
 - (c) Solve the concrete problems relating to the scenarios below:
 - (i) Explain what will happen to concrete if it dries out too quickly. (3 marks)
 - (ii) Provide example and explanation to speed up the hardening of concrete. (3 marks)
 - (iii) Provide example and explanation to slow the hardening of concrete. (3 marks)

- (d) Explain the proper way in handling and preparing concrete below:
- (i) The importance of a proper water to cement ratio. (2 marks)
 - (ii) The purpose of a superplasticizer in making concrete. (2 marks)
 - (iii) The significant of wearing gloves while mixing concrete. (2 marks)
 - (iv) This statement: "Water is important in making concrete, however, it can also be harmful to concrete". (2 marks)

- Q3** (a) Discover **FIVE (5)** advantages and disadvantages of timber as a construction material. (10 marks)
- (b) Explain the following Malaysian hardwoods based on their density and natural durability and give **TWO (2)** examples of timber species for each of them:
- (i) Heavy hardwoods (5 marks)
 - (ii) Medium hardwoods (5 marks)
 - (iii) Light hardwoods (5 marks)

- Q4** (a) Describe **FIVE (5)** advantages of using steel in building industry. (5 marks)
- (b) List **FIVE (5)** applications of steel angle. (5 marks)
- (c) Describe with illustration the following principle system for connecting steel member:
- (i) One-way beam system (5 marks)
 - (ii) Two-way beam system (5 marks)
 - (iii) Triple beam system (5 marks)

END OF QUESTIONS

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