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Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

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

COURSE NAME : CONSTRUCTION MATERIAL
AND TESTING

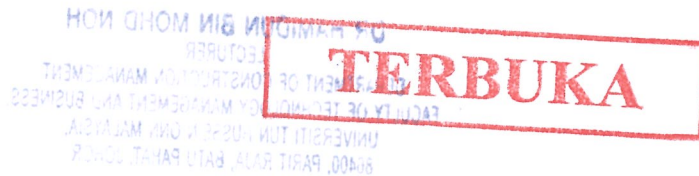
COURSE CODE : BPD 30903

PROGRAMME CODE : BPC

EXAMINATION DATE : DECEMBER 2017/JANUARY 2018

DURATION : 2 HOURS 30 MINUTES

INSTRUCTION : ANSWER ALL QUESTIONS



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

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Q1 Concrete is a mix of cement, water and aggregates. It is widely used in construction industry as it is an economical material and contribute to the structural strength and durability of a structure.

(a) State the hydration process involved in concrete mixing. (4 marks)

(b) List **TWO (2)** disadvantages of cement as a building material (4 marks)

(c) Differentiate the coarse and fine aggregate. (8 marks)

(d) Differentiate the chemical and pozzolanic admixture. (9 marks)

Q2 In building construction, brick material is widely used for wall construction. It is laid together with mortar to form a structure.

(a) Identify **THREE (3)** types of clay bricks. (6 marks)

(b) Describe the procedure used in manufacturing process of clay bricks. (8 marks)

(c) Determine **THREE (3)** required properties of bricks. (3 marks)

(d) Demonstrate **THREE (3)** tests conducted to ensure the quality of bricks. (8 marks)

Q3 Ferrous metal such as iron and stainless steel are the construction material that widely used in construction industry. Its availability, high workability and durability is among the chosen factors of this material in reinforced concrete structure.

(a) Define the meaning of ferrous metal. (3 marks)

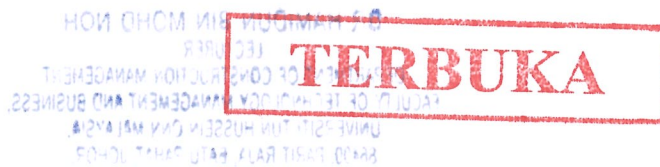
(b) Differentiate the properties of cast iron and wrought iron. (8 marks)

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- (c) Analyze the stress-strain relationship of steel. (8 marks)
- (d) Illustrate **THREE (3)** types of semi-finished product of steel. (6 marks)

Q4 Instead of concrete, mortar is playing a vital role as a binder material for masonry and other green building material. The used of green material in construction improved the sustainability of a building.

- (a) Define the meaning of mortar. (3 marks)
- (b) Illustrate **FIVE (5)** types of jointing for mortar in masonry work (5 marks)
- (c) Describe **THREE (3)** types of glass used in construction industry. (6 marks)
- (d) Discuss **THREE (3)** environmental problems contributed by plastics. (6 marks)
- (e) List **FIVE (5)** advantages of Fibre Reinforced Polimer (FRP) used in construction. (5 marks)



- END OF QUESTIONS -