

**UNIVERSITI TUN HUSSEIN ONN MALAYSIA****FINAL EXAMINATION
SEMESTER II
SESSION 2016/2017**

COURSE NAME : CONSTRUCTION MATERIALS
COURSE CODE : BNP10202
PROGRAMME CODE : BNA / BNB / BNC
EXAMINATION DATE : JUNE 2017
DURATION : 2 HOURS
INSTRUCTION : ANSWERS ALL QUESTIONS

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

Q1 Concrete work is the most important thing in construction :

- (a) Explain **THREE (3)** main purposes of concrete curing. (6 marks)
- (b) State **TWO (2)** methods of concrete curing. (3 marks)
- (c) Explain and sketch the procedure of slump test in detail. (10 marks)
- (d) Sketch and explain **THREE (3)** types of slump for fresh concrete. (6 marks)

Q2 (a) Steel is an important building material that used in construction industry in malaysia. Briefly describe **FOUR (4)** the natures of related steel. (8 marks)

(b) Describe **FOUR (4)** advantage and **FOUR (4)** disadvantage of usage of steel. (8 marks)

(c) Manufacturing of steel can be done through various process. List **FOUR (4)** manufacturing process of steel. (4 marks)

(d) As a technologist, you was assigned to design the steel based material laboratory building. Before doing your design work is required to choose the appropriate section to be used for major structural element of ;

- i) Beams
- ii) column,
- iii) trusses.

Select the appriopriate section for the structural elements with aided the sketches.

(5 marks)

Q3 (a) List **SIX (6)** example of the usage of timber in housing construction industry. (6 marks)

(b) Wood drying process is to produce of moisture or liquids in the airway cells in the timber. Please describe the purpose of the drying process is carried out before the the wood can be used.

(5marks)

- (c) Given the data for sample X used in the wood drying process. Calculate the percentage of moisture content of wood after drying 24 hours in the oven.

Wood size	:	150mm x 150mm x 500mm
Initial weight	:	380g
Final weight	:	298.4g

(5 marks)

- (d) Inteprete **THREE (3)** advantages and **THREE (3)** disadvantages of using timber as construction material.

(9 marks)

- Q4** (a) List **FOUR (4)** types of brick available in the market.

(4 marks)

- (b) The percentage of water absorption is indicated the degree of burning.

- (i) Explain the procedure involved in determining the compressive strength for brick.

(6 marks)

- (ii) The data below is obtained from brick test in the laboratory.

Brick size A: 250 mm x 150 mm x 70 mm
Brick size B: 269 mm x 145 mm x 74 mm

Mass of dried brick size A: 3.65 kg
Mass of wet brick size A: 4.0 kg

Mass of dried brick size B: 3.70 kg
Mass of wet brick size B: 3.95 kg

Calculate the average percentage of water absorption and average density.

(4 marks)

- (c) Sketch and explain the process involved in manufacturing the brick

(8 marks)

- (d) List and sketch **THREE (3)** types of bricks bonding and arrangement

(3 marks)

- END OF QUESTIONS -