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**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
(ONLINE)  
SEMESTER II  
SESSION 2020/2021**

COURSE NAME : BULDING CONSTRUCTION I  
(MATERIAL AND CONSTRUCTION)

COURSE CODE : BFR 21203

PROGRAMME CODE : BFR

EXAMINATION DATE : JULY 2021

DURATION : 3 HOURS

INSTRUCTION : ANSWER **FOUR (4)** QUESTIONS  
ONLY

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

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**TERBUKA**

- Q1** Timber can be considered as one of the oldest construction materials. In Malaysia, timber has been used extensively in building traditional Malay houses from their structures to their finishes.
- (a) State **FIVE (5)** advantage and **FIVE (5)** disadvantage of timber in construction. (10 marks)
  - (b) Briefly explain the type of connection and jointing techniques in traditional and modern timber construction. (5 marks)
  - (c) By using timber as a main material, the Malay traditional carpenters developed a construction technique called a '*tanggam*' (Mortise). This technique used to connect the components or parts of Malay traditional houses. With the aid of illustration, list and sketch **FIVE (5)** basic type of '*tanggam*' (Mortise). (10 marks)
- Q2** The world's most enduring buildings are constructed of solid masonry. Such buildings' thick monolithic walls can stand for centuries, their great mass providing strength, durability, and moderation of the flow of heat and moisture between indoors and outdoors.
- (a) List and explain **FIVE (5)** types of Masonry Walls. (10 marks)
  - (b) Illustrate **FIVE (5)** types of common brick bonds. (5 marks)
  - (c) Outline some of the special problems of masonry construction. (5 marks)
  - (d) Sketch and explain **TWO (2)** techniques of spanning openings in brick walls. (5 marks)
- Q3** You are assigned to design '*wakaf*' (small hut) by using the timber as main material. By applying basic timber construction:
- (a) Illustrate at least **TEN (10)** basic timber construction components from foundation to the roof in your '*wakaf*' design. (10 marks)

- (b) Recommend **FIVE (5)** suitable '*Tanggap*' (Mortise) to connect the components in your '*wakaf*' design. By using exploded diagrammatic drawings, sketch your '*Tanggap*' (Mortise) recommendation to show the connection of the components. (15 marks)

**Q4**

- (a) Based on your opinion, describe why masonry is often chosen as a construction material. Justify your opinion by highlighting the advantages of masonry construction. (10 marks)
- (b) State **TWO (2)** precedent building worldwide that manipulates the brick masonry construction as a main facade design feature. With the aid of illustration, sketch those facade design features. (5 marks)
- (c) State **FIVE (5)** type of glass that been used in building construction (5 marks)
- (d) Glass is transparent, hard and precious. The 'see through' and transparent properties sets it apart from other materials, makes it unusual and valuable. Despite of its unique characteristic, there are various disadvantages of glass as a material in building construction.
- Briefly describe the disadvantage of glass in building construction on the perspective of climate and economical point of view. (5 marks)

**– END OF QUESTIONS –**