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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2018/2019**

COURSE NAME : CONSTRUCTION MEASUREMENT
COURSE CODE : BPD 24603
PROGRAMME CODE : BPC
EXAMINATION DATE : DECEMBER 2018 / JANUARY 2019
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF **SIX (6)** PAGES

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Q1 The quantity “take-off” is an important part of the cost estimate. It must be as accurate as possible and should be based on all available engineering and design data. Use of appropriate automation tools is highly recommended. Accuracy and completeness are critical factors in all cost estimates. An accurate and complete estimate establishes accountability and credibility of the cost engineer, therefore, providing greater confidence in the cost estimate.

(Sources: Taking Off Quantities, 1995)

(a) Describe the importance of quantity take-off in construction project. (10 marks)

(b) Explain with examples, the function and practice of Bill of Quantities. (15 marks)

Q2 A contractor is planning to measure the quantity of works needed for laying the roof sheet as shown in **Figure Q2** in **Appendix 1**. The tip of the roof above the ceiling is 1800mm.

Calculate a quantity take-off for the following types of work to be included on the Bill of Quantities (BQ) based on the information given in **Figure Q2**.

(25 marks)

Q3 Pad footings are commonly used for shallow foundations in order to carry and spread concentrated loads caused by columns. **Figure Q3** in **Appendix 2** shows the plan and cross-section of reinforced G20 concrete (RC) pad footing. **Table Q3** in **Appendix 2** show the dimension and quantity of the RC pad footing. Concrete cover for RC pad footing is 40mm.

Calculate a quantity take-off for concrete work for RC pad footing based on the information given in **Figure Q3** and **Table Q3**.

(25 marks)

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Q4 Doors and windows are built with the purpose. Doors allow the indoor-outdoor passage of humans, luggage and pets and other things throughout the day. Windows allow the passage of air, and light without the risk of any intruder trespassing into the parameters and causing any harm. The size, material, and design of the doors and windows play an important role in the overall structure of the house and its maintenance. Doors and windows can be of many types. **Figure Q4(a)** and **Figure Q4(b)** in **Appendix 3** shows a wooden casement window and a timber flush door accordingly.

- (a) Explain measurement works for the components of wooden casement window as follows:
- (i) Head (3 marks)
 - (ii) Mullion (3 marks)
 - (iii) Sill (3 marks)
 - (iv) Top Rail and Bottom Rail (4 marks)
- (b) Discuss measurement works for the components of timber flush door as follows:
- (i) Lintel (3 marks)
 - (ii) Door Frame (3 marks)
 - (iii) Panel (3 marks)
 - (iv) Lockset (3 marks)

- END OF QUESTIONS -

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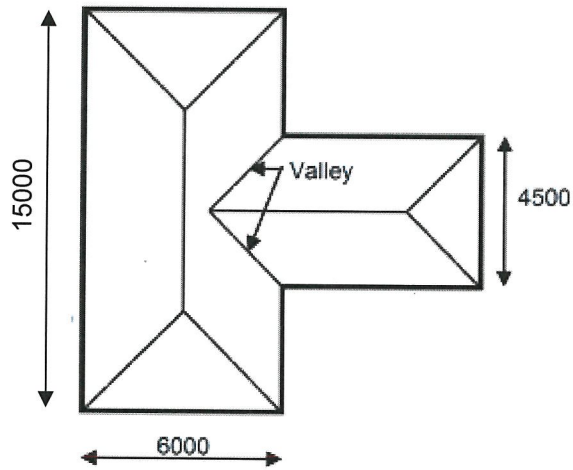


Figure Q2
Roof Sheet Layout

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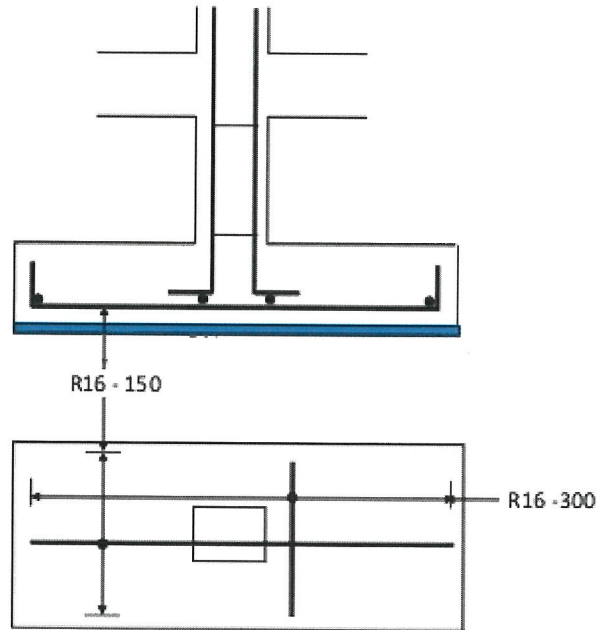


Figure Q3

Plan and cross-section of RC pad footing

Table Q3

Dimension and quantity of RC pad footing

Length (mm)	Width (mm)	Thickness (mm)	Quantity (no)
1200	600	300	6

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COMPONENTS OF WINDOW

b) CASEMENT WINDOW

- Head
- Jamb
- Mullion
- Bottom rail
- Top rail
- Transom
- Sill

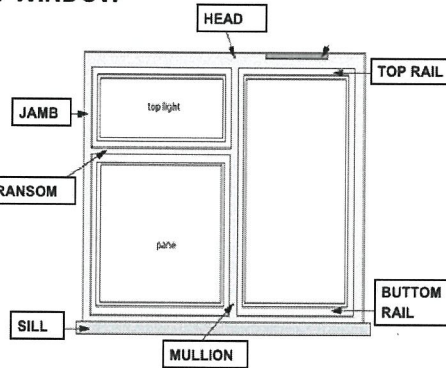


Figure Q4(a)

Wooden casement window

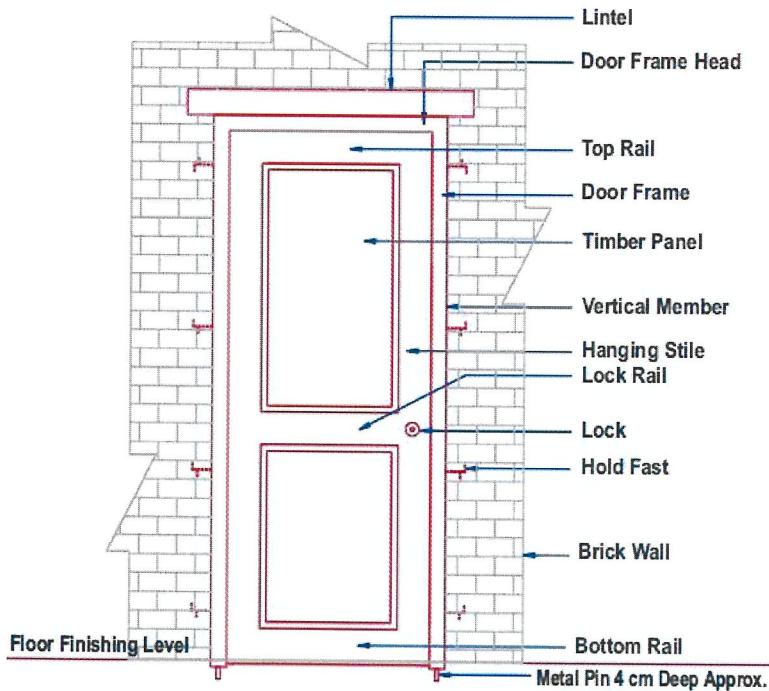


Figure Q4(b)

Timber flush door

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