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Universiti Tun Hussein Onn Malaysia

**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

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

COURSE NAME : CONTRACT AND ESTIMATION  
COURSE CODE : BFC31602  
PROGRAMME CODE : BFF  
EXAMINATION DATE : JUNE / JULY 2019  
DURATION : 2 HOURS 30 MINUTES  
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES

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- Q1** (a) Briefly describe key tasks that need to be performed by relevant parties in Stage **F**, **G**, **H**, **J** and **K** (during Pre-Construction and Construction) as denoted in **Figure Q1**. (10 marks)

| Pre-Construction                     |                                    |                             | Construction               |  |
|--------------------------------------|------------------------------------|-----------------------------|----------------------------|--|
| <b>F</b><br>(Production Information) | <b>G</b><br>(Tender Documentation) | <b>H</b><br>(Tender Action) | <b>J</b><br>(Mobilisation) | <b>K</b><br>(Construction to Practical Completion) |

**FIGURE Q1** - Royal Institution of British Architects (RIBA) Work Stages

- (b) With the aid of relevant court cases, explain the following terms:
- (i) Unilateral offer
  - (ii) Invitation to treat
  - (iii) Silence is not an acceptance
- (9 marks)
- (c) In response to a tender invitation, a contractor (A) offers/proposes by a letter sent by post on 1 June 2011 to undertake renovations to an employer’s (B) bungalow at certain price. B receives the letter on 7 June 2011 and accepts the offer/proposal by a letter sent by post on 8 June 2011 at 12 noon.
- (i) When the A’s communication of the offer is complete?
  - (ii) If A wants to revoke his offer/proposal, when is the deadline?
- (6 marks)

- Q2** (a) A new government hospital is proposed to be built in Sri Gading. This project requires an entity (contractor) that has full responsibility for design and construction of the project. Propose (with justification) the most suitable type of tender for appointment of a capable contractor for this project. Then, briefly explain the tendering process appropriate for this purpose. (12 marks)

- (b) Describe **ONE (1)** purpose of the following documents:
- (i) Table Tender Document
  - (ii) Schedule of Rate
  - (iii) Method Statement
- (6 marks)
- (c) Define and distinguish typical scope and nature of work carried out under “Provisional Sum” and “Prime Cost Sum”. (7 marks)

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- Q3** (a) Target cost is a cost reimbursement type of contract where the amount of payment for contractor depends on the total cost whether it is below or above the target cost. Using formulas: (i) plus a bonus, and (ii) plus a penalty, give examples of calculation in determining the amount of payment to the contractor in both total cost conditions, i.e. below and above the target cost. (9 marks)
- (b) There are two most frequently used project procurement methods namely Traditional and Design and Build. Compare these two project procurement methods in the following aspects:
- (i) Design and construction responsibilities
  - (ii) Workmanship quality
  - (iii) Project duration
- (6 marks)
- (c) Differentiate Management Contracting from Construction Management in terms of contract responsibilities and risk allocations among the key contracting parties (i.e. client, consultants and contractors). (10 marks)
- Q4** Based on **Figure Q4(a) - (b)** and **Table Q4**, perform taking off to determine the quantity of the following items:
- (a) Concrete for pad footing, column stump and ground beam (in m<sup>3</sup>). (7 marks)
- (b) Reinforcement bars in pad footing, column stump and ground beam (in kg). (12 marks)
- (c) Links in column stump and stirrups in ground beam (in kg). (6 marks)

–END OF QUESTIONS–

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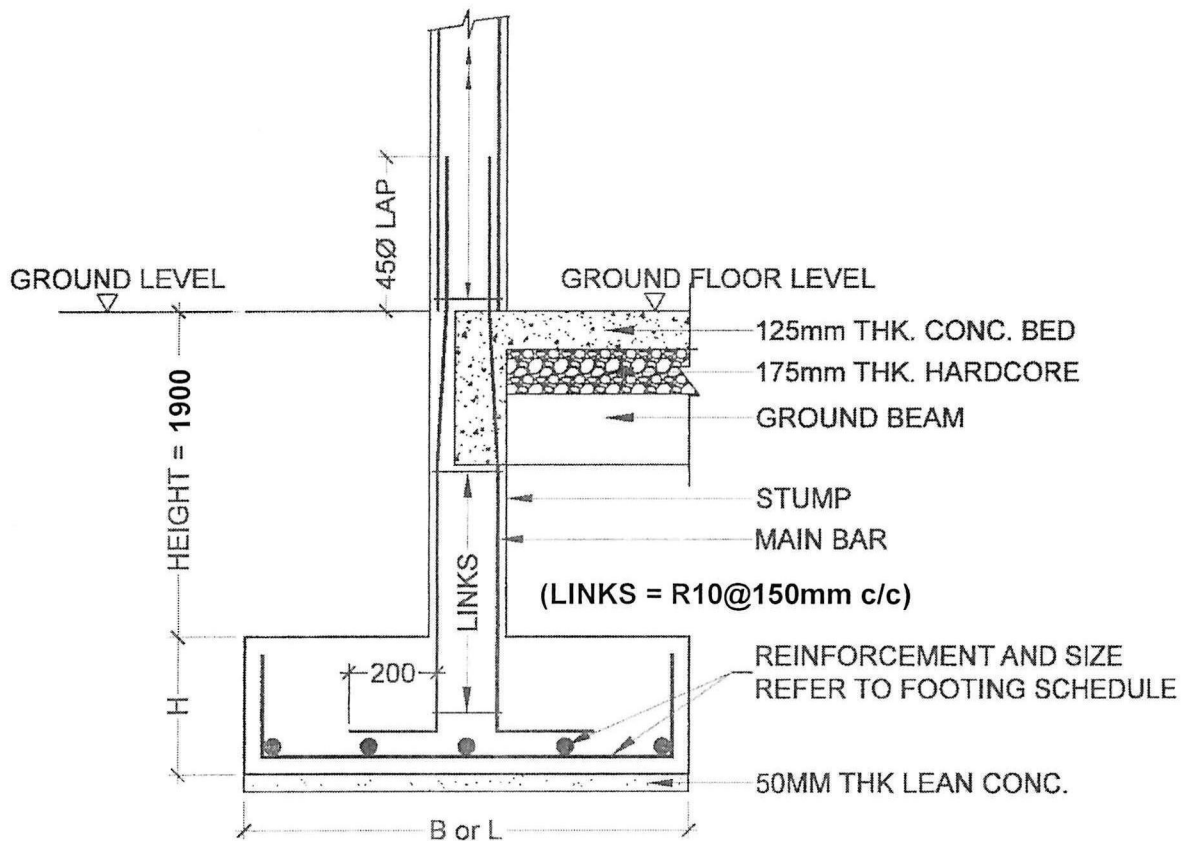
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**PAD FOUNDATION REINFORCEMENT SCHEDULE**



| FOOTING SCHEDULE |                   |                    |
|------------------|-------------------|--------------------|
| Type             | B x L x H         | Main Reinforcement |
| F1               | 1200 x 1200 x 400 | 10T16@125 (B/W)    |

- NOTES :
1. ALL DRAWINGS ARE NOT TO SCALE
  2. ALL DIMENSIONS ARE IN MILIMETRE (MM) UNLESS OTHERWISE NOTED.
  3. ALL CONCRETE COVERS SHALL BE 40 MM THICK.
  4. LEAN CONCRETE SHALL BE OF GRADE 7 CONCRETE
  5. PAD FOOTING, COLUMN STUMP AND GROUND BEAM SHALL BE OF GRADE 25 CONCRETE

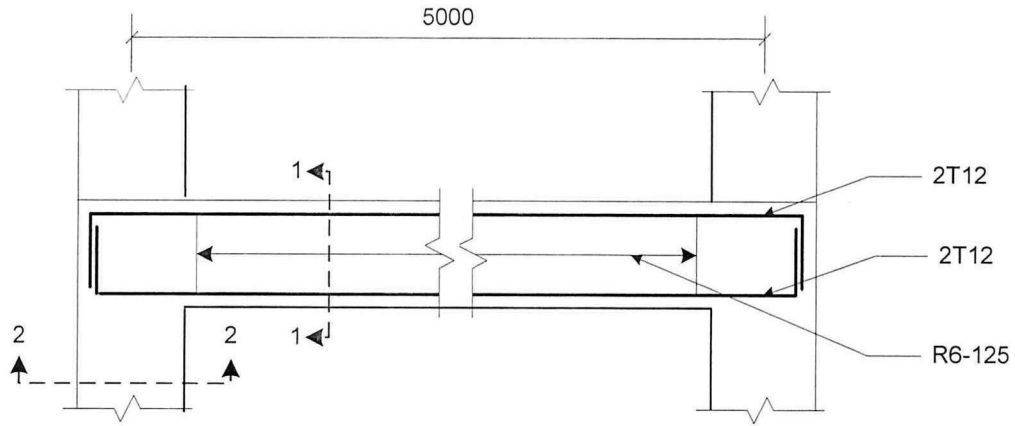
**FIGURE Q4 (a)**

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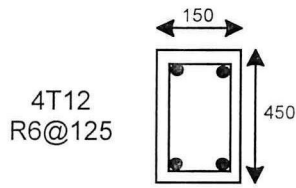
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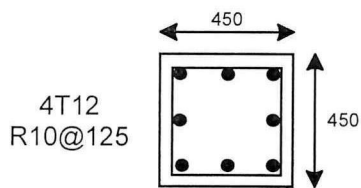
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**TYPICAL GROUND BEAM CROSS SECTION (150 x 450)**



**SECTION 1-1:  
GROUND BEAM**



**SECTION 2-2: COLUMN/  
COLUMN STUMP**

**FIGURE Q4 (b)**

**TABLE Q4 - Conversion Table for Round Bar**

| SIZE (MM) | MASS PER UNIT LENGTH (KG/M) |
|-----------|-----------------------------|
| 06        | 0.222                       |
| 08        | 0.395                       |
| 10        | 0.616                       |
| 12        | 0.888                       |
| 16        | 1.579                       |
| 20        | 2.466                       |
| 25        | 3.854                       |
| 32        | 6.313                       |