



# UTHM

Universiti Tun Hussein Onn Malaysia

## UNIVERSITI TUN HUSSEIN ONN MALAYSIA

### FINAL EXAMINATION SEMESTER I SESSION 2022/2023

- COURSE NAME : CONTRACT AND ESTIMATION
- COURSE CODE : BFC 31602
- PROGRAMME CODE : BFF
- EXAMINATION DATE : FEBRUARY 2023
- DURATION : 2 HOURS 30 MINUTES
- INSTRUCTION :
1. ANSWER **ALL** QUESTIONS.
  2. THE FINAL EXAMINATION IS CONDUCTED VIA **CLOSED BOOK**
  3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK

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

- Q1** (a) Discuss critical activities that need to be performed in the following stages of a package deal type of project.  
(12 marks)
- (b) Explain the elements of contract in creating a mutual contractual agreement.  
(7 marks)
- (c) Determine **TWO (2)** possible remedies for breach of contract that can be claimed if a certain contract is terminated.  
(6 marks)
- Q2** (a) During the construction stage, you have been given a costing task for the addition concreting work. You need to calculate and prepare the build-up rate for one (1) metre cubic of reinforced concrete (1:2:4) with 25mm aggregate by using the concrete mixer. The related information is given in **Table Q2**.  
(11 marks)
- (b) Describe the following essential contract terms in the construction contract document:
- (i) Standard form of contract  
(3 marks)
- (ii) Specifications of works  
(3 marks)
- (c) Contract document is an agreement document or legal document which explain tasks and responsibilities of each contracting party to the contract. Differentiate the contractual obligations between a main contractor and an employer (client) during the project execution.  
(8 marks)
- Q3** (a) The National Museum Department (JMN) and Department of National Heritage (JWN) are intended to conserve an old and historical building in Malacca. The building will be converted into Malacca's Cultural Museum. The project will be a fast-track project and need to be completed within two (2) years. Minimum client intervention and change orders without compromising the quality of the building is also expected for this project.
- (i) Based on the given above characteristics, identify the most applicable procurement method and explain all the requirements for the selected procurement method.  
(10 marks)

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- (ii) Explain the process (from inception to completion stages) of the project delivery using the recommended procurement method in Q3(a)(i). (10 marks)
- (iii) If the awarded company for the above project is failed to apply for the Extension of Time (EOT) within six (6) months before the end of the project original completion date. Determine the consequences if the EOT is not approved by the Client. (5 marks)

**Q4** You are assigned to provide a quantity measurement for work below lowest floor finish (WBLFF) element of a school hall building. Based on **Figure Q4(a) - (b)** and **Table Q4**, perform a quantity measurement of the following items:

- (a) Concrete for pad footing, column stump and ground beam (in m<sup>3</sup>). (6 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). (7 marks)

**-END OF QUESTIONS-**

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**Table Q2: Labour constant and items rate**

| <b>Item</b>   | <b>Labour constant / Rate / %</b> |
|---|-----------------------------------|
| Cement  | RM280.00/m <sup>3</sup>           |
| Fine aggregate  | RM35.00/m <sup>3</sup>            |
| Course aggregate  | RM30.00/m <sup>3</sup>            |
| Rental rate of concrete mixer machine (6 days/week)     | RM500.00/week                     |
| Productivity of concrete mixer machine                  | 5m <sup>3</sup> /hour             |
| No. of labours needed to operate concrete mixer machine | 2 labours/machine                 |
| Labour constant (productivity) for concrete mixing      | 3 hours/m <sup>3</sup>            |
| Concrete wastage percentage                             | 30%                               |
| Labour salary (8 hours working/day)                     | RM50.00/day                       |
| Profit  | 15%                               |

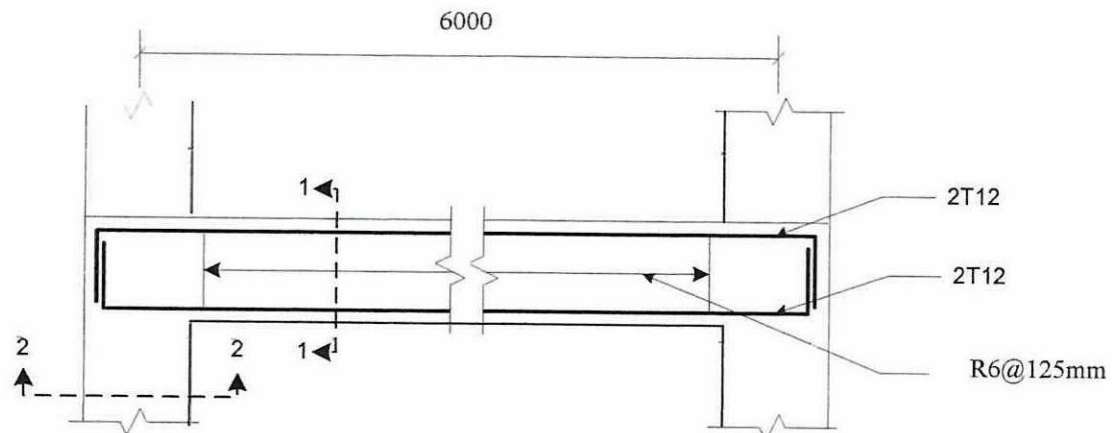
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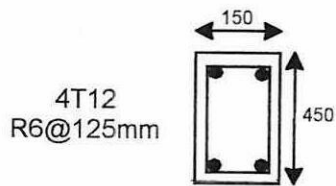
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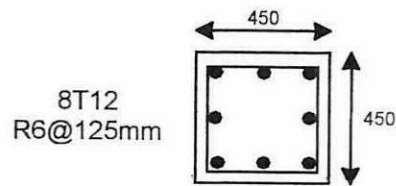
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**TYPICAL GROUND BEAM CROSS SECTION (150 x 450)**



**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                       |

BFC31602 – TAKING OFF SHEET

NAME: \_\_\_\_\_ MATRIC NUM.: \_\_\_\_\_

| DIMENSION |  |  | UNIT | DESCRIPTION |
|-----------|--|--|------|-------------|
|           |  |  |      |             |

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