

CONFIDENTIAL



UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2019/2020**

COURSE NAME : CONSTRUCTION COST ESTIMATION
COURSE CODE : BPD 31003
PROGRAMME CODE : BPC
EXAMINATION DATE : DECEMBER 2019 / JANUARY 2020
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

TERBUKA

THIS QUESTION PAPER CONSISTS OF SEVEN (7) PAGES

CONFIDENTIAL

- Q1** Construction cost estimating is a technical process of calculating construction costs by building up rates for every single element in tenders. Estimating the cost of building and engineering works involve the average output of mechanical plant per hour, the average output of labour per hour and require the knowledge at the most economical manner to carry out the works. There are two methods of construction cost estimating.
- (a) Discuss **TWO (2)** purposes of construction cost estimating. (4 marks)
- (b) Explain the **TWO (2)** methods of construction cost estimating. (12 marks)
- Q2** A tender document may include preliminaries and specification.
- (a) Explain the importance of specification. (6 marks)
- (b) Analyse the contents of preliminaries for a building work. (12 marks)
- Q3** Refer to **Table 1** and **Table Q3** in **APPENDIX I** and **APPENDIX II** respectively.
- (a) Calculate build-up rates for reinforced in-situ concrete Grade 25 (1:1½:3 – 19 mm aggregate) in suspended floor slab not exceeding 100mm thick by using a machine size 10/7 per m³. (17 marks)
- (b) Calculate build-up rates for reinforced in-situ concrete Grade 30 (1:3:6 – 40 mm aggregate) in isolated beams by using a machine size 18/12 per m³. (17 marks)
- Q4** Refer to **Table 1**, **Table Q4(a)**, **Table Q4(b)** and **Table Q4(c)** in **APPENDIX I**, **APPENDIX II** and **APPENDIX III** respectively.
- (a) Calculate build-up rates for 25mm thick cement and sand (1:3) paving with steel trowelled finish to floor level or to falls not exceeding 15° from horizontal on concrete base per m². (16 marks)

TERBUKA

- (b) Calculate build-up rates for 25mm cement and sand (1:3) skirting 100mm high with rounded top edge and cove at bottom to wall on brickwork base per m (Price of mortar is based on answer of Q4(a)).

(5 marks)

- Q5** Refer to **Table 1**, **Table Q5(a)**, **Table Q5(b)** and **Table Q5(c)** in **APPENDIX I**, **APPENDIX III** and **APPENDIX IV** respectively.

Calculate build-up rates per m² for:

- (a) 5mm clear sheet glass to wood with screwed beads in panes 0.10 – 0.50m².

(5 marks)

- (b) 8mm thick ready cut of tinted float glass to metal clips and putty in panes 0.50 – 1.00m².

(6 marks)

TERBUKA

- END OF QUESTIONS -

FINAL EXAMINATION

SEMESTER / SESSION : SEMESTER I / 2019/2020

PROGRAMME CODE : BPC

COURSE NAME : CONSTRUCTION COST ESTIMATION

COURSE CODE : BPD 31003

Table Q3: Machine output for mixing cement and sand

Machine size	Labour	Output/hour (m ³)	Diesel/hour (litre)	Lubrication/hour (litre)
5 / 3½	1 operator, 1 unskilled	1.25	1.10	0.04
7 / 5	1 operator, 3 unskilled	2.25	1.60	0.06
10 / 7	1 operator, 4 unskilled	3.25	1.80	0.07
14 / 10	1 operator, 4 unskilled	4.50	2.10	0.08
18 / 12	1 operator, 6 unskilled	5.50	2.40	0.10

Table Q4(a): Labour output for floor paving

Types of Paving (20mm – 25mm thick)	1 Spreader and 1 Unskilled Worker (hour/m ²)
Cement	0.30
Granolithic	0.35
Screeded	0.25
Trowelled	0.30

Table Q4(b): Labour output for plastering work

Position	1 Plasterer and 1 Unskilled Worker (hour/m ²)
Wall	0.40
Ceiling	0.50

FINAL EXAMINATION

SEMESTER / SESSION : SEMESTER I / 2019/2020 PROGRAMME CODE : BPC
COURSE NAME : CONSTRUCTION COST ESTIMATION COURSE CODE : BPD 31003

Table Q5(c): Putty for glass installation

Size of glass (m ²)	Putty (kg/m ² glass)	
	Fixing with putty	Fixing with screw beads
≤ 0.10	3.00	1.00
0.10 – 0.50	2.00	0.75
0.50 – 1.00	1.00	0.33
> 1.00	0.75	0.25

TERBUKA