

SULIT



**BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
KEMENTERIAN PENGAJIAN TINGGI**

JABATAN KEJURUTERAAN AWAM

PEPERIKSAAN AKHIR

SESI II : 2021/2022

DCQ40162 : ESTIMATING 2

TARIKH : 01 JULAI 2022

MASA : 3.00 PM – 5.00 PM (2 JAM)

Kertas ini mengandungi **SEMBILAN (9)** halaman bercetak.

Bahagian A: Struktur (3 soalan)

Bahagian B: Esei (1 soalan)

Dokumen sokongan yang disertakan : TIADA

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT

SECTION A : 75 MARKS
BAHAGIAN A : 75 MARKAH

INSTRUCTION:

This section consists of **THREE (3)** structured questions. Answer **ALL** questions.

ARAHAN:

*Bahagian ini mengandungi **TIGA (3)** soalan struktur. Jawab **SEMUA** soalan.*

QUESTION 1

SOALAN 1

CLO1
C2

- (a) Explain **TWO (2)** cost components of measured work in built-up rates.
*Terangkan **DUA (2)** komponen kos kerja terukur di dalam pembangunan kadar harga.*

[5 marks]

[5 markah]

CLO1
C3

- (b) Based on the data given, prepare the built-up rates for a 600mm length precast concrete drain in cement mortar (1:3) on bed (measured separately). (Unit-m)
Berdasarkan data yang diberi, sediakan pembangunan kadar harga bagi longkang konkrit tuang dahulu 600mm panjang dengan mortar simen (1:3) di atas papak (diukur berasingan). (Unit-m)

Data Given:

Diberikan Data :

- | | | |
|------|--|------------------------|
| i. | Price rate for 600mm length drain
<i>Kadar harga longkang 600mm panjang</i> | RM60.00/No |
| ii. | Price rate for cement
<i>Kadar harga simen</i> | RM18.50/bag |
| iii. | Price rate for sand
<i>Kadar harga pasir</i> | RM58.00/m ³ |
| iv. | Mortar usage per meter drain
<i>Penggunaan mortar per meter longkang</i> | 0.15m ³ / m |
| v. | Unskilled worker wage
<i>Upah pekerja kurang mahir</i> | RM60.00/ day |
| vi. | Skilled labour wage
<i>Upah pekerja mahir</i> | RM90.00/ day |

- | | | |
|-------|---|-------------------------------|
| vii. | Constructing drain/ <i>membina longkang</i> | |
| | Skilled labour output/ <i>Output pekerja mahir</i> | 0.45 hour/ m |
| | Unskilled labour output/ <i>Output pekerja kurang mahir</i> | 0.45 hour/ m |
| viii. | Unskilled labour output for mixing mortar | 0.45 hour/ 0.15m ³ |
| | <i>Output pekerja kurang mahir bagi membancuh mortar</i> | of mortar |
| ix. | Profit and overhead | 30% |
| | <i>Keuntungan dan overhed</i> | |

[12 marks]

[12 markah]

CLO1
C4

- (c) The built-up rate for 25mm diameter Class D, UPVC pipe to B.S 3505 is RM 5.60 per meter run. Analyze the built-up rates for “Extra Over 25mm diameter class D, UPVC pipe for tee joint”. (Unit- No).

Pembangunan kadar harga bagi 25mm diameter Kelas “D” paip uPVC B.S 3505 adalah RM5.60 per meter. Analisa pembangunan kadar harga bagi “EXTRA OVER” 25mm diameter Kelas “D” uPVC paip penyambung tee. (Unit- No).

Data given:

Diberikan data:

- | | | |
|------|--|-------------|
| i. | 25mm diameter Tee joint (150mm long) | RM2.00/no |
| | <i>25mm diameter sambungan tee (150mm panjang)</i> | |
| ii. | Solvent cement for connection | RM0.60/no |
| | <i>Simen pelarut untuk penyambungan</i> | |
| iii. | Plumber | RM70.00/day |
| | <i>Tukang paip</i> | |
| iv. | Unskilled labour | RM50.00/day |
| | <i>Pekerja kurang mahir</i> | |

- | | | |
|------|---|--------------|
| v. | Plumber output
<i>Output tukang paip</i> | 0.16 hour/no |
| vi. | Unskilled labour output
<i>Output pekerja kurang mahir</i> | 0.16 hour/no |
| vii. | Profit and overhead
<i>Keuntungan dan overhed</i> | 15% |

[8 marks]

[8 markah]

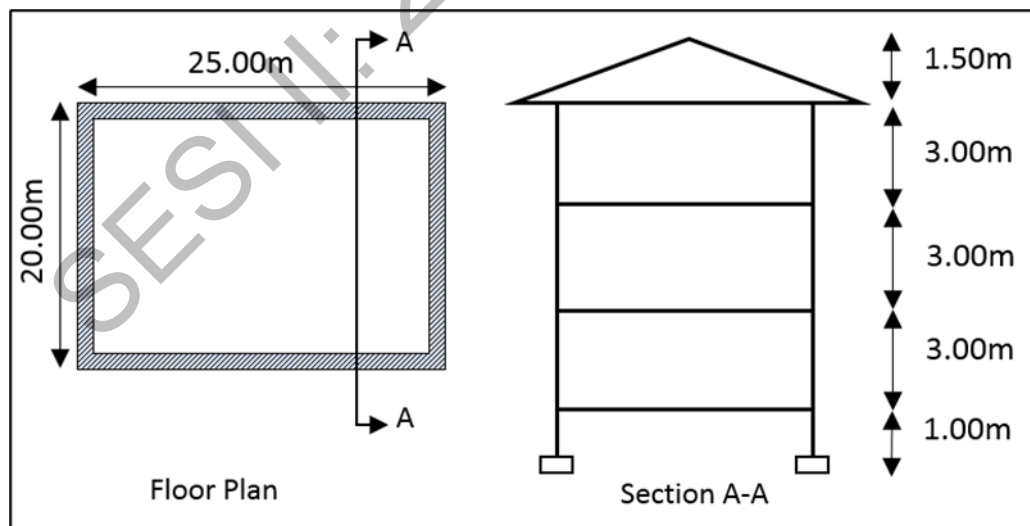
QUESTION 2**SOALAN 2**CLO1
C2

- (a) Describe **THREE (3)** advantages of the gross floor area method in preliminary cost estimate.

*Terangkan **TIGA (3)** kebaikan kaedah keluasan lantai kasar di dalam anggaran kos awalan.*

[5 marks]

[5 markah]

**Diagram 2B(i): Proposed Building*****Rajah 2B(i): Bangunan Cadangan***

CLO1
C3

- (b) Based on the data given and **Diagram 2B (i)**, prepare a preliminary cost estimate by using the cubic method.

*Berdasarkan kepada data yang diberikan dan dan **Rajah 2B (i)**, sediakan anggaran kos awalan dengan menggunakan kaedah isipadu.*

Data given:

Diberikan data:

- i. The construction cost for a similar project was RM2.0 million where the volume of the building was 2500m^3

Kos pembinaan bagi projek yang serupa adalah RM 2.0 million dengan isipadu bangunan 2500m^3

- ii. The size of the foundation is 1200mm x 1200mm x 350mm high.

Saiz asas adalah 1200mm x 1200mm x 350mm tinggi.

[12 marks]

[12 markah]

CLO1
C4

- (c) During the pre-design stage, shopping complex X was estimated to be worth RM25.5 million in 2018 by the consultant of the project by using the cubic method. However, upon its completion in 2020 the actual cost of the building was RM30 million. Assume **THREE (3)** factors that may cause the cost differences.

*Semasa peringkat pra-reka bentuk, kompleks membeli-belah X dianggarkan bernilai RM25.5 juta pada tahun 2018 oleh perunding projek dengan menggunakan kaedah kubik. Namun, setelah siap pada tahun 2020, kos sebenar bangunan itu adalah RM30 juta. Andaikan **TIGA (3)** faktor yang mungkin menyebabkan perbezaan kos tersebut..*

[8 marks]

[8 markah]

QUESTION 3**SOALAN 3**CLO1
C2

- (a) Explain
- TWO (2)**
- classifications of cost data.

*Terangkan **DUA (2)** klasifikasi data kos.*

[5 marks]

[5 markah]

CLO1
C3

- (b) A construction of a 1200m
- ²
- building is planned for 2022. In 2018, a similar building was constructed for RM 1.5 million with an area of 1000 m
- ²
- . The price index in the year 2018 was 145, meanwhile, the index for 2022 is forecasted at 152. Calculate the cost per gross floor area in construction time for a proposed building and percentage changes. Other factors remain unchanged.

Pembinaan bangunan berukuran 1200m² dirancang untuk tahun 2022. Pada tahun 2018, bangunan serupa dibina dengan harga RM 1.5 juta dengan keluasan 1000 m². Indeks harga pada tahun 2018 adalah 145, sementara itu, indeks untuk 2022 diramalkan pada 152. Hitung kos per meter persegi dan perubahan peratus pada waktu pembinaan bangunan cadangan dilaksanakan. Faktor-faktor lain dianggap tiada berubah.

[12 marks]

[12 markah]

GROSS FLOOR AREA: 15,809 m ²			TENDER DATE: 31st April 2005					
	Preliminaries shown Separately							
	Total Cost of Element RM	Cost per m ² GFA RM	Element Unit Quantity	Element Unit Rate	Element Ratio per m ² GFA	Reinforced concrete m ³	Reinforce ment kg	Formwork m ²
<u>1 Substructure</u>								
1A Piling	298,731.60	18.90	7320 m	40.81	0.470	-	-	-
1B Work Below Lowest Floor Finish	195,695.13	12.38	568 m ²	344.53	0.036	133	10,193	114
Group Element Cost	494,426.73	31.28	-	-	-	133	10,193	114
<u>2 Superstructure</u>								
2A Frame	826,744.99	52.30	15,809 m ²	52.30	1.000	671	164,329	12,548
2B Upper floors	1,229,988.00	77.80	15,341 m ²	80.70	0.964	2,298	77,914	15,300
2C Roof	477,943.73	30.23	994 m ²	480.83	0.063	170	20,882	914
2D Stairs	172,725.86	19.93	-	-	-	121	13,690	1,121
2E External Walls	939,486.82	59.43	10,193 m ²	92.17	0.645	856	173,714	9,780
2F windows & External Doors	1,358,355.93	85.92	3,907m ²	347.67	0.247	-	-	-
2G Internal walls & Partitions	773,728.23	48.94	11,817 m ²	65.48	0.747	822	127,828	8,508
2H Internal Doors	196,301.71	12.42	2,231 m ²	87.99	0.141	-	-	-
Group Element Cost	5,975,275.57	377.97	-	-	-	4,938	578,357	48,171
<u>3 Finishes</u>								

Diagram 3C (i): Elemental Cost Analysis Form 2

*Rajah 3C (i): Analisa Kos Elemen Borang 2*CLO1
C4

- (c) **Diagram 3C (i)** shows a part of Elemental Cost Analysis Form 2. Explain **FOUR (4)** informations provided in the form.

Rajah 3C (i) menunjukkan sebahagian Borang 2 Analisis Kos Elemen. Terangkan EMPAT (4) maklumat yang terdapat di dalam borang tersebut.

[8 marks]

[8 markah]

SECTION B : 25 MARKS
BAHAGIAN B : 25 MARKAH

INSTRUCTION:

This section consists of **ONE (1)** essay question. Answer **ALL** question.

ARAHAN:

*Bahagian ini mengandungi **SATU (1)** soalan esei. Jawab **SEMUA** soalan.*

QUESTION 1

SOALAN 1

CLO1
C3

- (a) Build-up rates for 3000mm x 1065mm x 6mm thick corrugated asbestos cement roofing sheet with 150mm head lap and 75mm side lap at 30° pitch, nailed to timber purlins at 1000mm centres. (Unit-m²)

Bangunkan kadar harga bagi 3000mm x 1065mm x 6mm tebal kepingan atap simen asbestos beralun dengan 150mm tindihan hujung dan 75mm tindihan sisi, dipakukan pada kayu purlin pada 1000mm tengah ke tengah. (Unit-m)

Data Given:

Diberikan Data :

- | | | |
|-------|--|--------------------------|
| i. | Price rate for asbestos roofing sheet | RM50.00/piece |
| | <i>Kadar harga kepingan bumbung asbestos</i> | |
| ii. | Nail price rate | RM7.00/kg (90 nos) |
| | <i>Kadar paku</i> | |
| iii. | Nail usage | 3 nos/m ² |
| | <i>Penggunaan paku</i> | |
| iv. | Wastage | 5% |
| | <i>Pembaziran</i> | |
| v. | % for Lapping | *To calculate |
| | <i>% pertindihan</i> | *Untuk dikira |
| vi. | Skilled worker wage | RM90.00/day |
| | <i>Upah pekerja mahir</i> | |
| vii. | Unskilled worker wage | RM60.00/day |
| | <i>Upah pekerja kurang mahir</i> | |
| viii. | Skilled worker constants for installation | 0.16 hour/m ² |
| | <i>Angkatap pekerja mahir untuk memasang</i> | |

- ix. Unskilled worker constants for installation 0.16 hour/m²

Angkatap pekerja kurang mahir untuk memasang

- x. Profit and overhead 30%

Keuntungan dan pengurusan

[15 marks]

[15 markah]

CLO1
C4

- (b) The methods for a preparing preliminary estimate can be divided into unit, gross floor area, cubic, storey enclosure and approximate quantities method. Compare the usage for each of the methods given.

Kaedah bagi menyediakan anggaran awalan boleh dibahagikann kepada kaedah unit, keluasan lantai kasar, isipadu, kepungan tingkat dan kuantiti nilaiian hamper. Bandingkan penggunaan bagi setiap kaedah yang diberikan.

[10 marks]

[10 markah]

TAMAT