

SULIT



BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK
KEMENTERIAN PENDIDIKAN MALAYSIA

JABATAN KEJURUTERAAN AWAM

PEPERIKSAAN AKHIR
SESI DISEMBER 2014

CC301: QUANTITY MEASUREMENT

TARIKH : 22 APRIL 2015
MASA : 2.30 PM - 4.30 PM (2 JAM)

Kertas ini mengandungi **EMPAT BELAS (14)** halaman bercetak.

Bahagian A: Struktur (10 soalan)

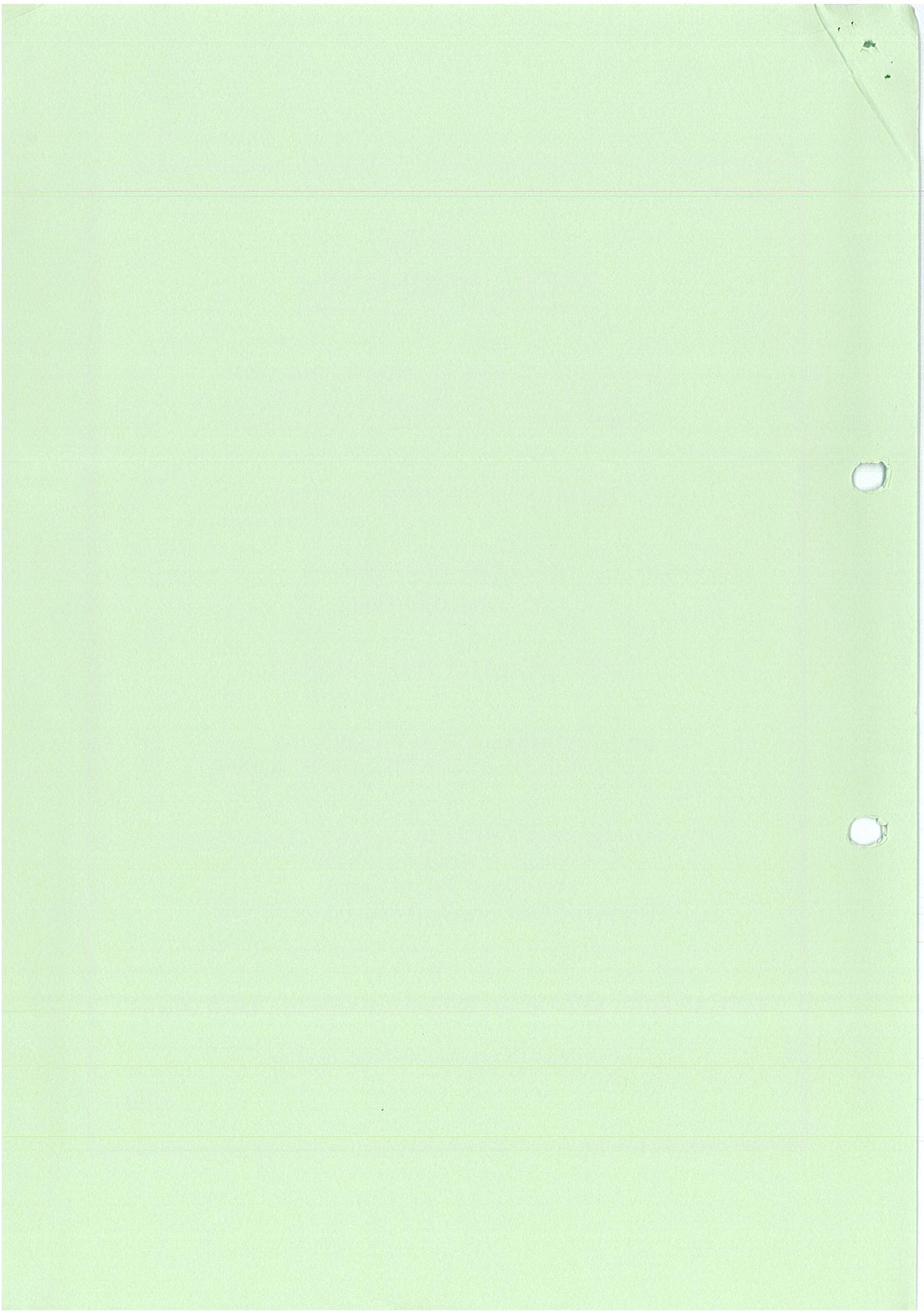
Bahagian B: Esei (4 soalan)

Dokumen sokongan yang disertakan : Borang Dimensi

JANGAN BUKA KERTAS SOALANINI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT



SECTION A : 40 MARKS
BAHAGIAN A : 40 MARKAH

INSTRUCTION:

This section consists of **TEN (10)** structured questions. Answer **ALL** questions.

ARAHAN:

Bahagian ini mengandungi SEPULUH (10) soalan berstruktur. Jawab semua soalan.

CLO1

C1

QUESTION 1

List **THREE (3)** methods of preparing a preliminary estimating in building construction works.

SOALAN 1

*Senaraikan **TIGA (3)** kaedah bagaimana melakukan angaran kos permulaan dalam kerja-kerja pembinaan.*

[4 marks]
[4 markah]

CLO1

C1

QUESTION 2

State **TWO (2)** advantages of unit valuation method.

SOALAN 2

*Nyatakan **DUA (2)** kebaikan kaedah penilaian unit*

[4 marks]
[4 markah]

CLO1

C2

QUESTION 3

The cost estimation is a design guide which will show whether the project is appropriate to the allocation made earlier. Explain the action should be taken if the estimation is higher than the allocated sum?

Anggaran kos adalah sebagai panduan rekabentuk sama ada projek itu sesuai dengan peruntukan yang telah disediakan. Terangkan tindakan yang perlu dilakukan sekiranya anggaran kos lebih daripada peruntukan?

[4 marks]
[4 markah]

CLO1
C1**QUESTION 4**

State the importance of preliminary estimating to the following parties:

- a) Project manager
- b) Contractor

Nyatakan kepentingan anggaran awalan kepada pihak berikut :

- a) *Pengurus projek*
- b) *Kontraktor*

[4 marks]
[4 markah]

CLO1
C2**QUESTION 5**

Based on **Figure A5**, calculate the building area by using Floor Area Method. Given wall thickness is 225mm.

Berdasarkan kepada Rajah A5, kirakan keluasan bangunan dengan menggunakan Kaedah Keluasan Lantai. Diberi tebal dinding ialah 225mm.

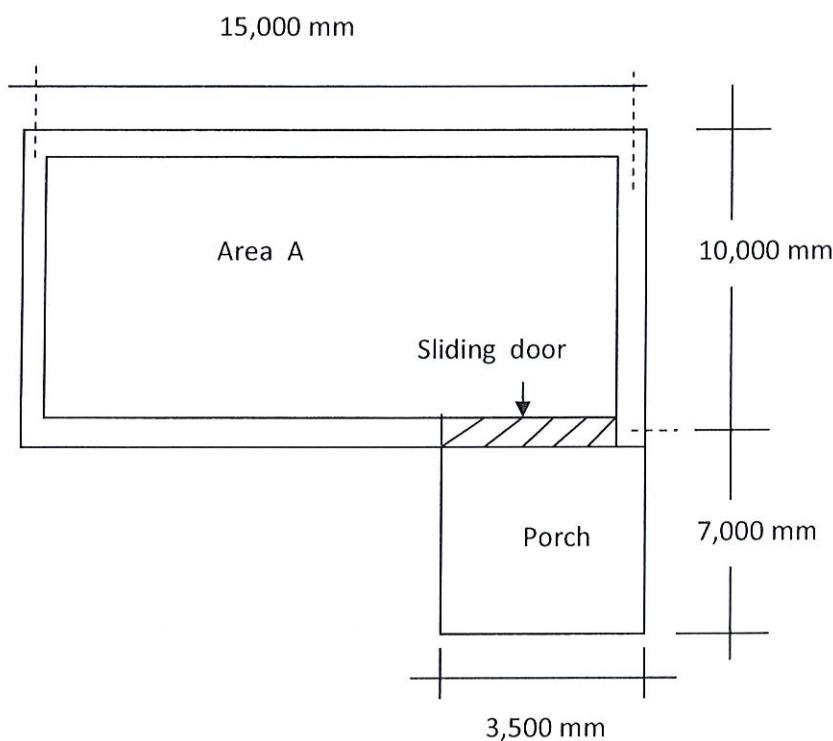


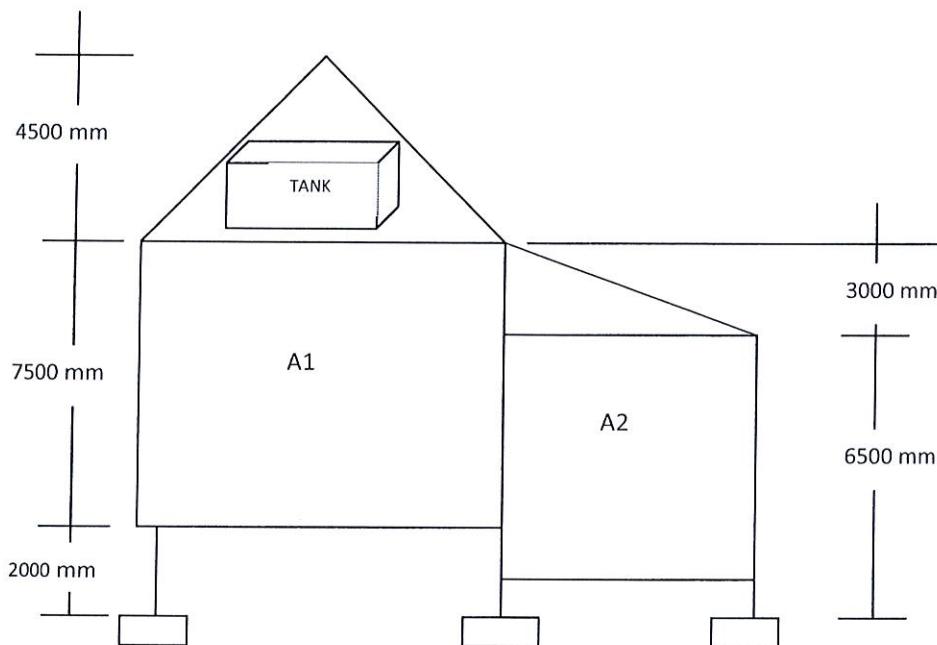
Figure A5
Rajah A5

[4 marks]
[4 markah]

CLO1
C2**QUESTION 6**

Based on **Figure A6**, calculate the Volume of the building using Cubic Content Method.

Berdasarkan Rajah A6, kirakan Isipadu bangunan menggunakan Isipadu Bangunan.



Note:

$$\text{Floor Area A1} = 15,000 \text{ mm} \times 10,000 \text{ mm}$$

$$\text{Luas Lantai A1} = 15,000 \text{ mm} \times 10,000 \text{ mm}$$

$$\text{Floor Area A2} = 7,000 \text{ mm} \times 6,000 \text{ mm}$$

$$\text{Luas Lantai A2} = 7,000 \text{ mm} \times 6,000 \text{ mm}$$

Figure A6
Rajah A6

[4 marks]

[4 markah]

CLO1
C1**QUESTION 7**

List **FOUR (4)** factors to be considered in estimating price rate.

*Senaraikan **EMPAT (4)** faktor-faktor yang perlu diambil kira dalam menganggar kadar harga.*

[4 marks]

[4 markah]

CLO1

C2

QUESTION 8

Calculate the excavation cost which will be done manually by using the data given below. The surface must be levelled and the excess soil must be carried out of the site.

Data**Labour Output**

Excavation : 1.25 hour/m³ Labour wages : RM 50.00/day

Carrying out soil : 0.65 hour/m³ Types of soil : Ordinary soil

Levelling : 0.50 hour/m³

Kirakan kos penggalian/m³ yang akan dilakukan secara manual berdasarkan maklumat yang diberikan di bawah. Tanah kemudian perlu dilaraskan dan baki tanah perlu diangkut keluar dari tapak

Maklumat**Angkatap Buruh**

Pengorekan : 1.25 jam/m³ Upah buruh : RM50.00/hari

Mengangkut keluar tanah : 0.65 jam/m³ Jenis tanah : Tanah Biasa

Melaras permukaan : 0.50 jam/m³

[4 marks]

[4 markah]

CLO1

C2

QUESTION 9

Based on the data given in **Table A9**, calculate the labour cost for excavation work.

Berdasarkan data yang diberi dalam Jadual A9, dapatkan kos buruh bagi kerja penggalian tersebut.

| | |
|---------------------------------|-------------------------|
| Labour output for excavate soil | 3.5 hour/m ³ |
| Labour wages | RM55 / day |
| General labour | 2 person |
| Type of soil | Ordinary |

Table A9
Jadual A9

[4 marks]

[4 markah]

CLO1
C2**QUESTION 10****SOALAN 10**

Refer to **Table A10**, calculate the material cost for concrete work.

Merujuk kepada Jadual A10, kirakan kos bahan bagi kerja konkrit tersebut.

| | |
|-------------------------|-----------------------|
| Cement | RM24.00 / bag |
| Sand | RM40 / m ³ |
| Aggregate | RM45 / m ³ |
| Composition of concrete | 1 : 2 : 4 |

Table A10
Jadual A10

[4 marks]
[4 markah]

SECTION B : 60 MARKS
BAHAGIAN B : 60 MARKAH

INSTRUCTION:

This section consists of **FOUR (4)** essay questions. Answer **THREE (3)** questions only.

ARAHAN:

Bahagian ini mengandungi **EMPAT (4)** soalan esei. Jawab **TIGA (3)** soalan sahaja.

CLO1
C3

QUESTION 1
SOALAN 1

By referring to **Figure B1**, calculate the quantity of earthwork for cut & fill using Square Method. Data given:

- a. Interval is 6m
- b. Formation level is 99.5
- c. Top soils is 150mm

SOALAN 1

Merujuk kepada **Rajah B1**, kirakan kuantiti kerja tanah untuk pengorekan dan penambakan dengan menggunakan kaedah segiempat. Diberi data:

- a. Sela 6m
- b. Aras pembentukan 99.5
- c. Lapisan tanah atas 150mm

[20 marks]
[20 markah]

| A | B | C |
|---|-------|-------|
| 1 | 99.5 | 98.2 |
| 2 | 100.2 | 101.8 |
| 3 | 94.7 | 100.0 |
| | | 96.95 |

Figure B1
Rajah B1

QUESTION 2
SOALAN 2CLO2
C3

Based on the **Drawing NO: CC301/FOOTING/Q2**, carry out taking off for the following works:

- i. Excavation for pad footing
- ii. Concrete for pad footing and column stump
- iii. Formwork for pad footing and column stump

Data Given:

Column stump size = 300 x 300mm

Concrete grade = 1:2:4 -20mm aggregate

Concrete cover =30mm

Berdasarkan Lukisan NO: CC301/FOOTING/Q2, sediakan pengukuran kuantiti bagi kerja-kerja berikut:

- i. Pengorekan bagi asas papak
- ii. Konkrit untuk bagi papak dan tiang asas
- iii. Kotak bentuk bagi asas papak dan tiang asas

Data Diberi:

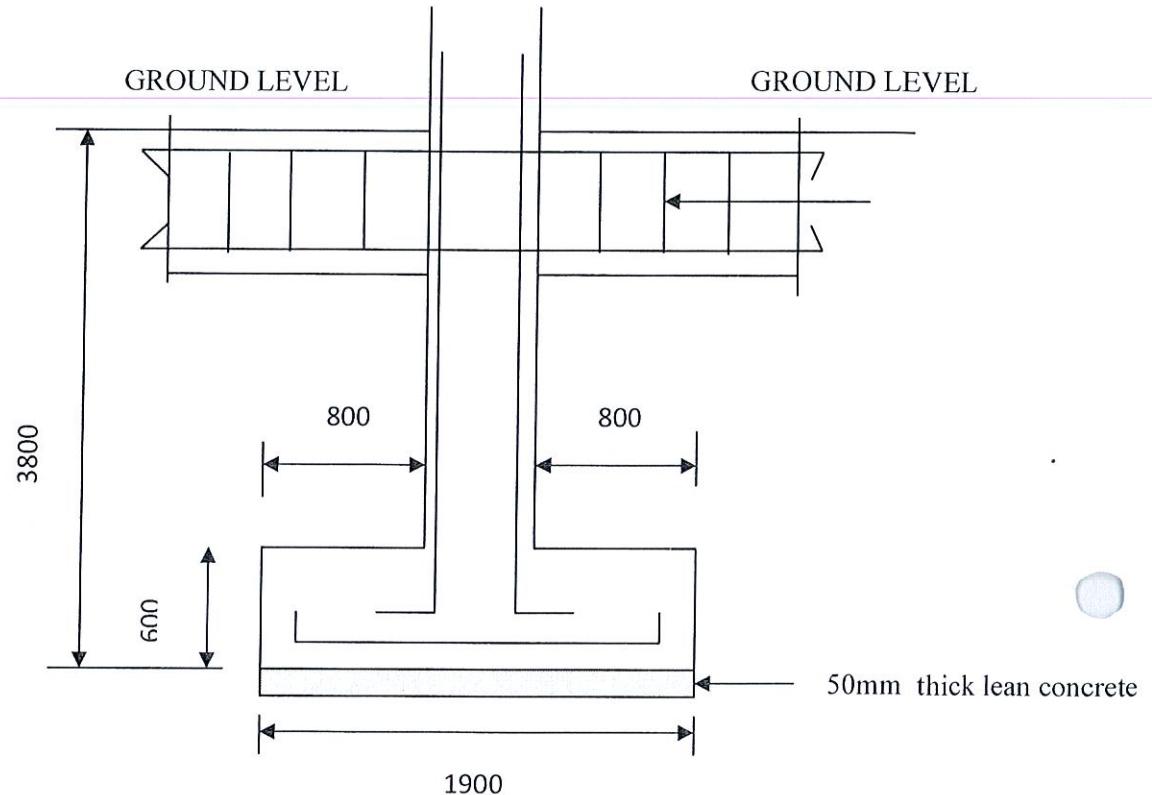
Saiz tiang asas =300 x 300mm

Gred konkrit = 1:2:4 -20mm aggregate

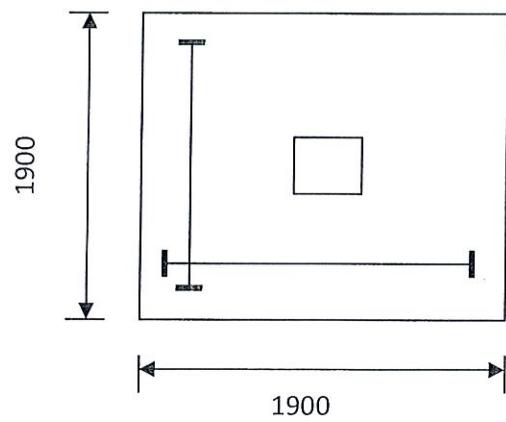
Penutup konkrit =30mm

[20 marks]

[20 markah]



TYPICAL a-a (FOOTING F1)



FOOTING (F1)

DRAWING NO : CC301/FOOTING/Q2

CLO 2
C3**QUESTION 3**

Referring to the reinforced concrete beam layout plan **Drawing No:**

PSIS/JKA/MSB/Q3, carry out taking off the quantities for the following items:

Dengan merujuk pelan susun arur rasuk konkrit tetulang Lukisan No: PSIS/JKA/MSB/Q3, sediakan ukur kuantiti bagi item-item seperti dibawah:

- i) Reinforced concrete (1:2:4 – 19 mm aggregate) for beam 1/A-B

Konkrit bertetulang (1:2:4-19 mm batu baur) untuk rasuk 1/A-B

[5 marks]

[5 markah]

- ii) High yield steel as main reinforcement bar in beam A/1-2

Keluli tegasan tinggi sebagai tetulang utama untuk rasuk A/1-2

[5 marks]

[5 markah]

- iii) Mild steel as stirrup in beam A/1-2

Keluli lembut sebagai tetulang perangkai pada rasuk A/1-2

[5 marks]

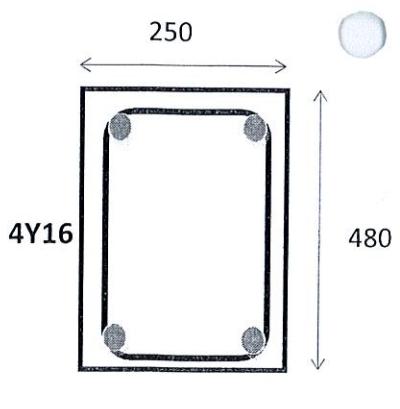
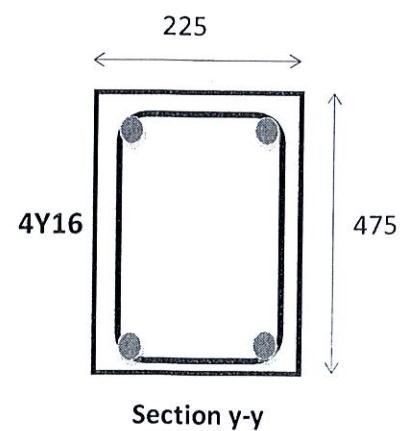
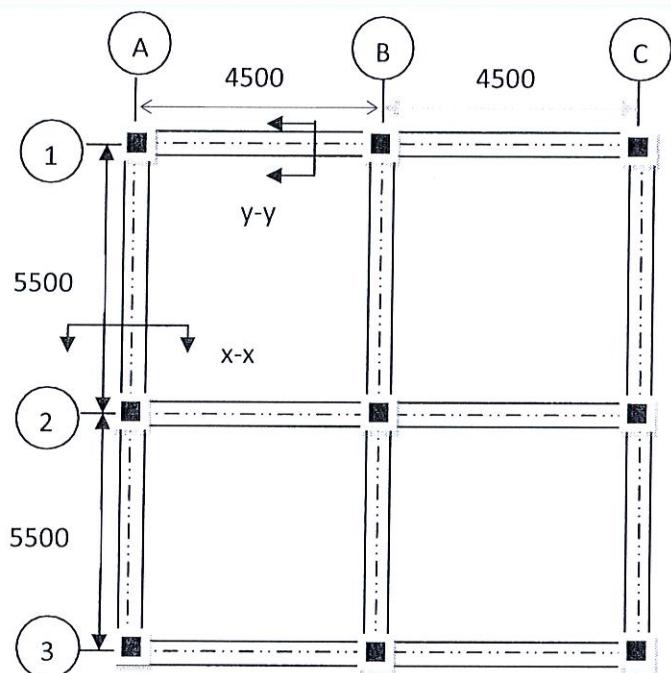
[5 markah]

- iv) Unsawned timber as formwork for beam 1/A-B

Kayu tidak berketam sebagai kotak bentuk rasuk 1/A-B

[5 marks]

[5 markah]



Drawing no : PSIS/JKA/MSB/Q3

Additional Info:

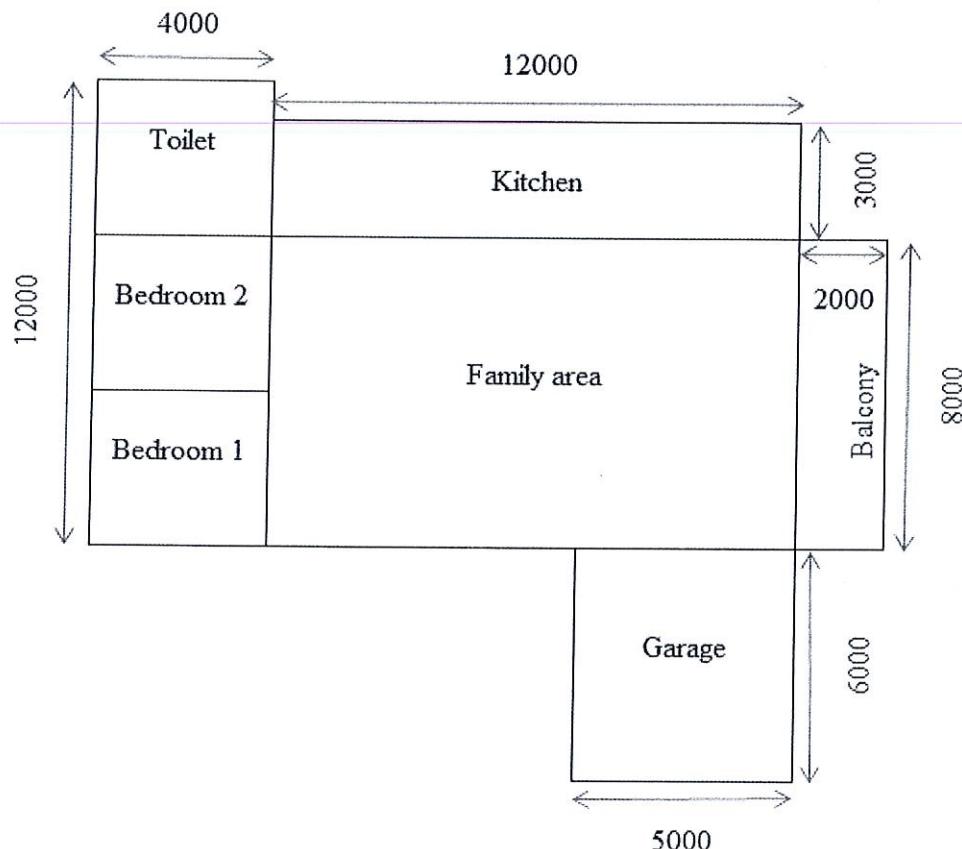
All beam's links/stirrup – R8 - 200 c/c
 Bending Factor: 5.5 d
 Hook Factor: 24d
 Concrete cover for column: 25 mm
 Conc. Cover for beam: 25 mm
 All Column sizes: [250 mm x 250 mm]

CLO 2
C3**QUESTION 4**
SOALAN 4

Based on **Drawing No. CC301/PSMZ/Q4**, carry out the taking-off for floor finishing and ceiling finishing.

Berdasarkan Lukisan No. CC301/PSMZ/Q4, sediakan senarai kuantiti untuk kemasan lantai dan kemasan siling.

[20 marks]
[20 markah]

**Information :**

- 1) Floor finishes for toilet, balcony and kitchen : Ceramic tiles
- 2) Floor finishes for bedroom 1, 2 and family area : Mosaic
- 3) Floor finishes for garage: Cement render
- 4) Ceiling finishes for all area are plaster ceiling

Drawing No. CC301/PSMZ/Q4

SOALAN TAMAT

FOR FINAL EXAMINATION USE ONLY

NO. SIRI:

| | | | | |
|--------------|-----------|----------|-----------|--|
| Drawing No: | Bill No.: | Element: | Slip No.: | |
| Heading: | | | Unit: | |
| Description: | Quantity: | | | |
| | | | | |
| | | | | |

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|--------------|-----------|----------|-----------|--|
| Drawing No: | Bill No.: | Element: | Slip No.: | |
| Heading: | | | Unit: | |
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