POLITEKNIK
Jabatan Pengajian Politeknik

EXAMINATION AND EVALUATION DIVISION
DEPARTMENT OF POLYTECHNIC EDUCATION
(MINISTRY OF HIGHER EDUCATION)

CIVIL ENGINEERING DEPARTMENT

FINAL EXAMINATION

CC301: QUANTITY MEASUREMENT

DATE : 19 NOVEMBER 2012 (MONDAY)
DURATION : 2 HOURS (2.30 PM – 4.30 PM)

This paper consists of **THIRTEEN (13)** pages including the front page.
Section A: Objectives (10 questions – answer ALL)
Section B: Essay (1 question – Answer ALL)
Section C: Essay (3 questions - answer 2)

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DO NOT OPEN THIS QUESTION PAPER UNTIL INSTRUCTED BY THE CHIEF INVIGILATOR

(The CLO stated is for reference only.)

SECTION A

OBJECTIVES (40 marks)

Instructions: This section consists of **TEN (10)** objective questions. Answer all questions in the answers booklet.

1. Preliminary Estimating in building construction is prepared based on ….[CLO1:C1]

   A. Re-built Building
   B. Existing Building
   C. New Building
   D. Proposed Building

2. The basic method in Preliminary Estimating Method is the ; [CLO1:C1]

   A. unit valuation
   B. floor area
   C. cubic content
   D. price rate method

3. Unit valuation method requires the information such as the number of ……. to prepare the cost estimate for the proposal of school building [CLO1:C3]

   A. patient
   B. building partition
   C. customer
   D. students

4. The advantages of using Cubic Method used in preliminaries estimating are; [CLO1:C2]

i. suitable for all buildings

ii. calculations are easy and fast

iii. required a complete drawing

iv. To make known the floor area of building to the employer

A. i and vi

B. i and ii

C. i, iii and iv

D. All of the above

Question 5 – 6 are based on the data given in Table 1

Type	Construction Cost (RM)	No. of students
School XYZ	3, 200, 000.00	2000
School ABC	2, 800, 000.00	1400

Table 1

5. Based on Table 1, what is the average construction cost of a school building for each student. [CLO1:C3]

   A. RM 1, 350.00

   B. RM 1, 850.00

   C. RM 1, 800.00

   D. RM 1, 600.00

6. Taking into consideration cost increment of 15% due to changes in materials, calculate the total construction cost of the school for a capacity of 2500 students.

   [CLO1:C3]

   A. RM 5, 175, 000.000

   B. RM 4, 875, 000.000

   C. RM 5, 200, 000.00

   D. RM 4, 680, 000.00

7. The formula for Cubic Method is ; [CLO1:C1]

   A. Length x Width

   B. Length x Width x Height

   C. Length x Height

   D. Width x Height

8. Which of the following are **TRUE** about the important of Preliminary Estimating Cost; [CLO1:C2]

   i. To know the total price element of the building work

   ii. To guide the contractor to enter the bid

   iii. To know the financial provisions of the contractor

   iv. To provide information for the consultant to design the building

   A. ii and iii

   B. i, and iv

   C. i, and iii

   D. ii and iv

Question 9 – 10 are based on the Diagram Shown in Figure 1

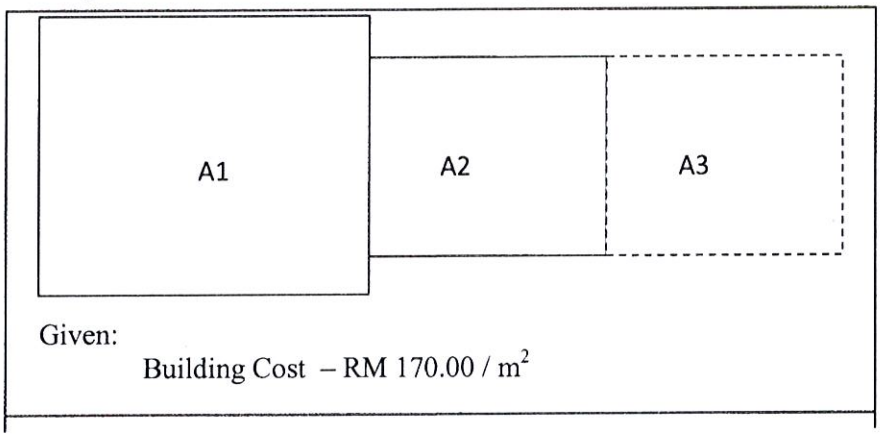


Figure 1

Building	Length (mm)	Width (mm)
A1	8600	8000
A2	6300	7500
A3(Balcony)	6300	7500

9. By using the Floor Area Method, calculate the area for all building ;
[CLO1:C3]

A. 140.00 m^2

B. 139.68 m^2

C. 138.65 m^2

D. 140.68 m^2

10. Calculate the Estimation Cost for all building ; [CLO1:C3]

A. RM 22, 990.60

B. RM 22, 860.00

C. RM 23, 745.60

D. RM23,600.50

SECTION B
ESSAY

QUESTION 1

As a Quantity Surveyor in one of contractor companies, you are assigned to calculate the rate for excavation work using Excavator. Your calculations shall be based on the following data.

(CLO 1,CLO 2: C1-C3)

Pad Foundation

Pad Footing size	1.20m x 1.20m x 0.6m thick
Excavation depth	1.60m
No. of pad footing	8
Types of soil	ordinary soil

Excavator

Rental	RM 250.00/hour
Machine output	3.00m^3/hour
Operator	1 person
Assistant operator	2 person
Working Period	8hours/day

Others

Operator wages	RM80.00/day
Assistant operator wages	RM40.00/day
Profit & overhead	15%
Diesel	4.55 liter/hour; RM1.20/liter
Lubricant oil	0.24 liter/hour; RM5.50/liter

(20 MARKS)

SECTION C

ESSAY (40 MARKS)

INSTRUCTION:

These sections consist of **THREE (3)** essay questions. Answer **TWO (2)** questions only

QUESTION 1 **(CLO2,3,4:A1-A4)**

Based on the drawing **NO: FOOTING/2012-01,** prepare a "taking off "for :

i. Excavation for pad footing

ii Concrete for pad footing and column stump

iii. Reinforcement bars for pad footing and column stump

Data:

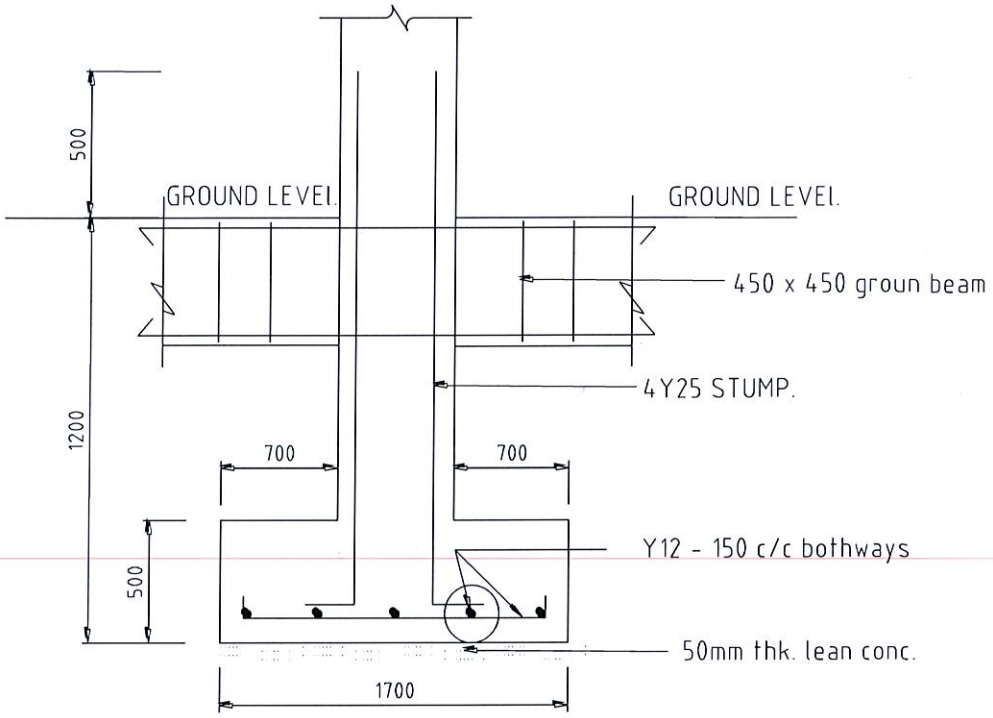
Column stump size = 300mm x 300mm

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

Concrete cover = 25 mm

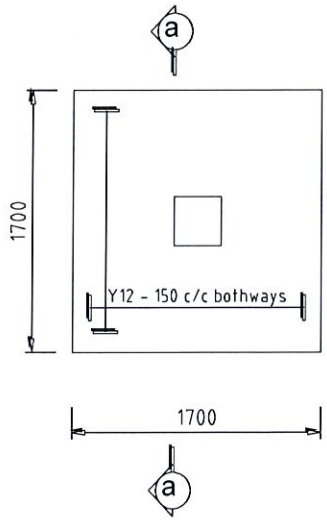
Link = R10-125 c/c

(20 MARKS)



TYPICAL a-a (FOOTING F1)

nts



FOOTING (F1)

DRAWING NO: FOOTING/2012-01

QUESTION 2

Based on the gridline below, calculate the area by using **SQUARE METHOD .**

[CLO2,3,4:A1-A4]

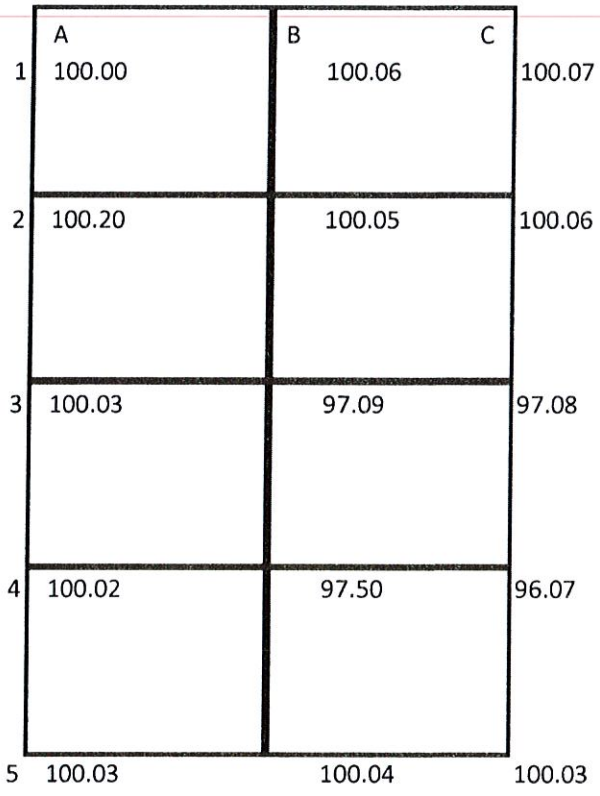
i. Average height for cutting and filling

ii. Total volume for earthwork

Given:Interval – 10 m

Formation level – 97.50 m

EARTHWORK



(20 MARKS)

QUESTION 3

Based on **FIGURE 2(a)** and **FIGURE 2 (b)**, prepare the taking off for **RB4** and **RB4A**, and measure the items below: (CLO2,3,4: C1-C3)

a) Vibrated reinforced concrete (VRC)

b) Sawn formwork

c) Reinforcement and stirrup

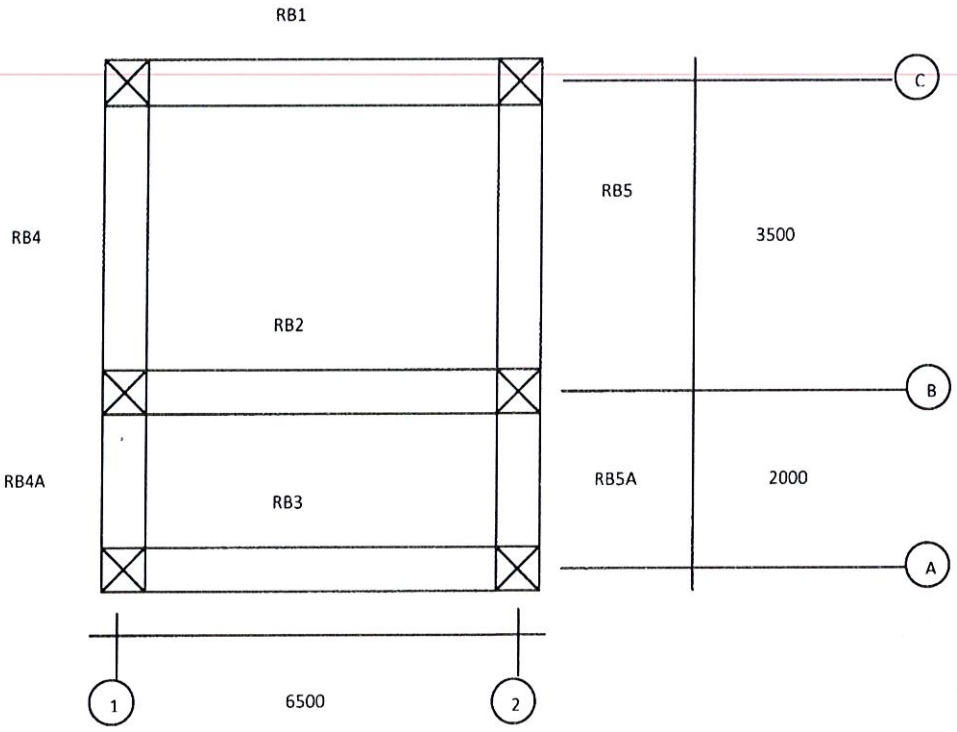


FIGURE 2 (a)

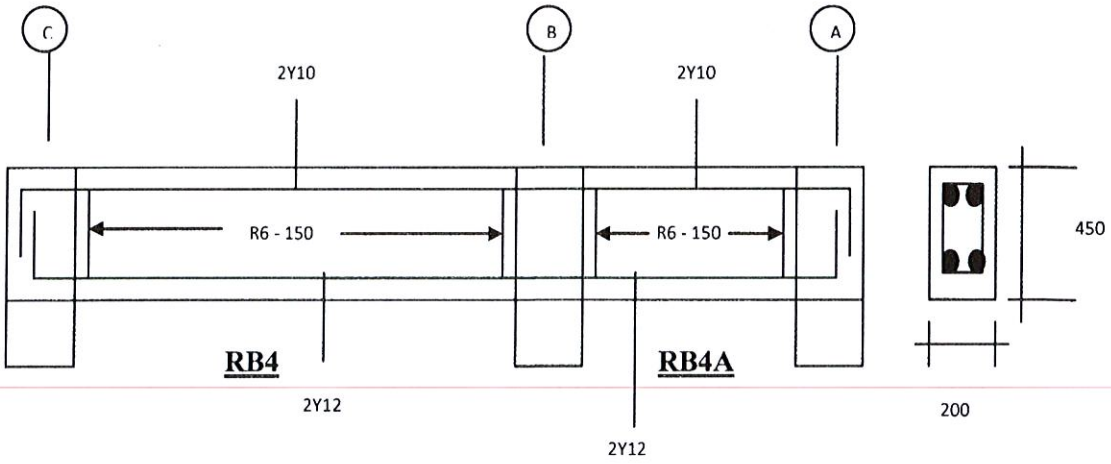


FIGURE 2 (b)

NOTES

1. concrete cover for roof beam is 25 mm
2. size of column is 200 mm x 200 mm
3. VRC to be Grade 20 (1:2:4)

(20 MARKS)

POLITEKNIK SULTAN IDRIS SHAH
SABAK BERNAM, SELANGOR

Projek : _____ No. Pend : _____
_____ No. Soalan : _____
No Lukisan : _____
Unsur kerja _____ Mukasurat : _____

Dimensi			Keterangan	Dimensi			Keterangan

PPD/C2006/S06/2

INTERPOLATION METHOD

LOCATION	GROUND LEVEL	FORMATION LEVEL	DEPTH		WEIGHTING	WEIGHTING DEPTH	
			+	-		+	-
TOTAL							

TAKING-OFF LIST

PROJECT NAME :

ELEMENT :

DWG. NO. :

ITEM	DESCRIPTION	UNIT

POLITEKNIK SULTAN IDRIS SHAH

Borang Senarai Kuantiti

NO. SIRI BUKU JAWAPAN: .....

Item	Keterangan	Unit	Kuantiti	Kadar Harga	Jumlah