



THE OPEN UNIVERSITY OF SRI LANKA
 DEPARTMENT OF CIVIL ENGINEERING
 CONSTRUCTION MANAGEMENT PROGRAMME - LEVEL 7
 POST GRADUATE DIPLOMA / STAND ALONE COURSES

Final Examination - 2005

CEX 7108/CEE 7108 - Cost Control and Cash Flow in the Construction Industry

Time Allowed : Three Hours

Date: 26th March 2006

Time : 0930-1230 hrs.

Select Section A and any three (3) questions from Section B and answer a total of four (4) questions. Q1 (section A) is compulsory and carries 40 marks. You are advised to spend about one hour on this question. Graph sheets will be provided.

SECTION A

Q1. Compulsory (40 marks)

The Programme for the construction of a small workshop building is displayed in the form of a precedence diagram in Figure 1.1. The value of the work contained in each activity has been calculated from the rates contained in the bill of quantities and is presented in Table 1.1.

The gross profit margin is 10% of contract value and retention is 5% upto a maximum limit of Rs.3,000.00.

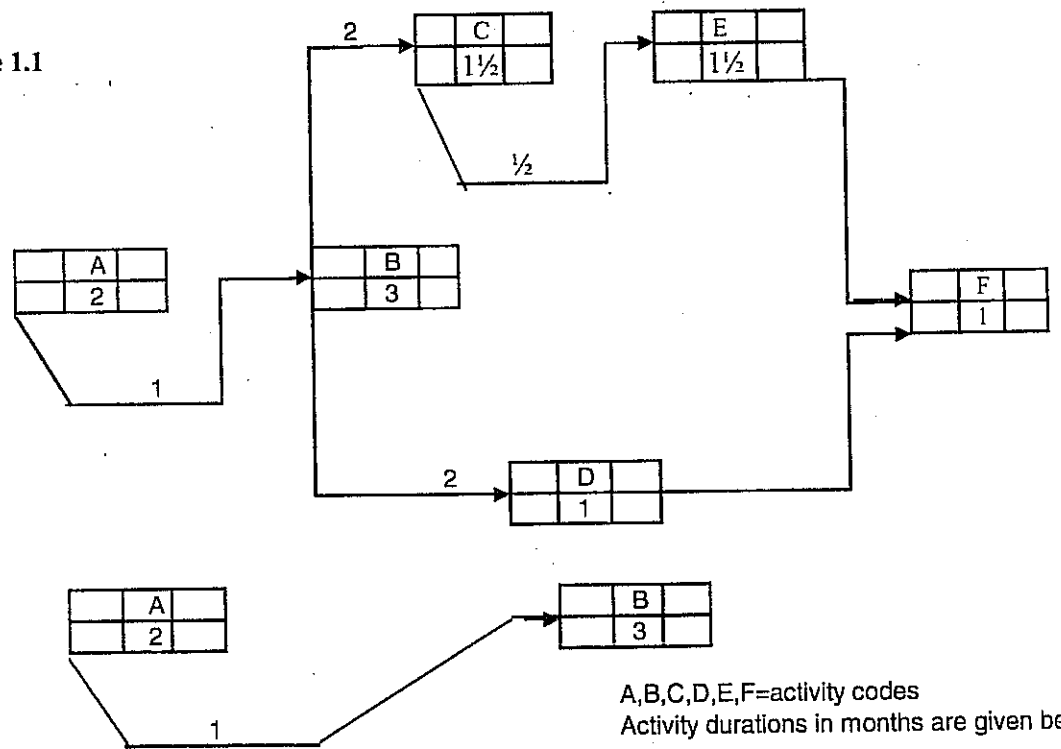
Measurement is made monthly with a delay of payment of one month.

Half of the retention is paid on practical completion and the remaining half, six months later.

Assume all costs are to be met at the instant they are incurred.

- (i) Develop a Bar Chart of activities & monthly work values. (10marks)
- (ii) Prepare a Cash flow forecast for the construction work. (20 marks)
- (iii) What is the maximum amount of cash the contractor needs to execute this contract and when does he require this amount? (05 marks)
- (iv) If interest is charged at 12% per annum on outstanding money what is the total cumulative interest cost? (05 marks)

Figure 1.1



Activity B starts one month after activity A has started

Table 1.1

Code	Activities	Duration in months	Value (Rs)
A	Excavation	2	9,000
B	Concrete bases	3	12,000
C	Erect frames	1.5	18,000
D	Concrete floor slabs	1	15,000
E	Fix cladding	1.5	6,000
F	Install plant	1	20,000

SECTION B – Answer any three questions

Q2.

As the assistant to the Construction Manager you are to improve the effectiveness of 'Cost Control' on a construction site.

- (a) Explain the points to be considered when designing a good cost control system? (10 marks)
- (b) Describe in detail the factors to be considered in designing the monitoring system. (10 marks)

Q3.

(a)

Explain the importance of the Value Engineering concept at the design stage, with reference to Cost Control of a project.

(10 marks)

(b) Explain the purpose of performing the 'Sensitivity Analysis' on the cash flow forecast for a construction project.

(10 marks)

Q4.

(a) Explain 'Cost Control' as a total concept.

(08 marks)

(b) Discuss the significance of 'Performance Ratios' in measuring a project's performance with regard to 'time', 'cost' and 'production'.

(04 marks)

(c) Discuss the use of 'Cost Centres' and 'Cost Codes' for operating a cost control system.

(08 marks)

Q5.

The budgeted cost prepared during the commencement of a pipe laying work, are presented in Table 5.1.

Progress of work at week 12 is given in Table 5.2.

The actual cost incurred at week 12 is presented in Table 5.3.

Table 5.1- Budgeted Cost

Activity description	Material	Labour	Equipment/transport	Site overhead	Total
Earth excavation	4,000.00	22,000.00	3,000.00	3,000.00	32,000.00
Underbed casting	27,000.00	10,000.00	4,000.00	4,000.00	45,000.00
Pipe laying	98,000.00	30,000.00	18,000.00	15,000.00	161,000.00
Pipe testing	7,000.00	11,000.00	71,000.00	9,000.00	98,000.00
Backfill	1,000.00	20,000.00	2,000.00	2,000.00	25,000.00
Clear site	1,000.00	12,000.00	14,000.00	3,000.00	30,000.00
Budget totals	138,000.00	105,000.00	112,000.00	36,000.00	391,000.00

Table 5.2 - Progress of work at week 12

Item	Actual progress at week 12
Earth excavation	100%
Underbed casting	100%
Pipe laying	89%
Pipe testing	60%
Backfill	20%
Clear site	Nil

Table 5.3- Actual Cost at incurred at week 12

Activity description	Material	Labour	Equipment/transport	Site overhead	Total
Earth excavation	3,000.00	24,000.00	3,000.00	4,000.00	34,000.00
Underbed casting	29,000.00	12,000.00	5,000.00	5,000.00	51,000.00
Pipe laying	99,000.00	28,000.00	15,000.00	15,000.00	157,000.00
Pipe testing	4,000.00	8,000.00	43,000.00	6,000.00	61,000.00
Backfill	200.00	5,000.00	400.00	600.00	6,200.00
Clear site	Nil	Nil	Nil	Nil	Nil
Totals	135,200.00	77,000.00	66,400.00	30,600.00	309,200.00

Calculate the 'Variances' and prepare a report on future action to be taken.

(20 marks)

Q6.

Write notes on the following.

- (i) "Cost Control by Profit or Loss on each Contract at valuation dates".
- (ii) Corporate Cashflow of a Company.
- (iii) Capital Lock-Up and three important factors, which affect the capital lock-up.

(07 marks)

(06 marks)

(07 marks)