



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

**Final Examination - 2006/07**

**CEX 7108/CEP7108/CEE 7108 - Cost Control and Cash Flow in the Construction Industry**

**Time Allowed : Three Hours**

**Date: 21<sup>st</sup> March 2007**

**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)**

A senior Engineer has given you the following data regarding the proposed Matara-Kataragama Railway Line Project.

Contract Value- Rs 200 Million

Time for completion- 10 months

Mark up- 10%

Retention- 10%

Release of retention- 50% on completion and balance after 6 months

Mobilisation Advance- 15%

Advance Recovery- 20% of Bill Value starting from second payment onwards

Bill Payments- monthly with one month payment delay

Average Credit Facility- one month

Cumulative Value Vs Time data to be calculated from the following production data.

Time (month)	Cumulative Value (% of Contract Value)
1	5%
2	10%
3	15%
4	20%
5	30%
6	45%
7	60%
8	75%
9	90%
10	100%



(a) Prepare a Cash-Flow forecast and draw 'CASH-IN' and 'CASH-OUT' graphs.

(20 marks)

You may make relevant assumptions where necessary.

Use the above graphs to obtain the following;

(b) The maximum amount of external finance required to complete this project & the time when this finance is required. (10 marks)

(c) Discuss the possible 'claims' issues for the above project and their likely effect on the cash flow. (10 marks)

**SECTION B – Answer any three questions**

**Q2.**

(a) Explain how 'Cost Control' can be exercised at the pre-contract stage of a project. (10 marks)

(b) There are different ways of ensuring that building contracts are awarded at competitive prices. Discuss the role of competition in the Cost Control function. (10 marks)

**Q3.**

(a) Discuss the factors which influence the accuracy of the process of Cost Planning. (10 marks)

(b) Outline in detail, the purpose and use of cash flow forecasting for Clients and Contractors. (10 marks)

**Q4.**

The Contract value for the construction of a house is Rs.22.51 million and the contract period is 06 months. The contractor's estimate for this project (budget) is shown in the Table 5.1 below.

Table 5.1- Project budget for a building (Rs.'000)

Activity	Labor category	Labor cost	Plant cost	Material cost	Site overhead	Head office overhead	Profit	Total value
Excavation of foundations	1	300	200	-	150	150	200	1000
Work upto DPC	2	420	-	1,200	200	200	300	2320
Fabricate door & window frames	3	860	300	3,500	340	340	400	5740
Brickwork above DPC	2	560	-	2,200	260	260	300	3580
Electrical & plumbing	4	800	230	2,000	220	220	260	3730
Finishes	2	660	400	4,000	340	340	400	6140
		3600	1130	12,900	1510	1510	1860	22510

At the end of month 03 a progress check shows the following completion of activities.

Excavation & Work upto DPC are 100% complete.  
 Fabricate doors & windows - 80% complete  
 Brickwork above DPC - 60% complete  
 Electrical & plumbing - 00%  
 Finshes - 00%

Cost allocation at the end of month 03 is shown in Table 5.2 below.

Table 5.2 - Actual Costs (Rs. '000) upto end of month 03

Labour category				Plant	Materials	Site overheads
1	2	3	4	500	6,900	600
320	1000	650	-			

Do a variance analysis for each of the categories of items listed and identify areas which need more management attention.

Give advice on the type of possible action for each case.

(20 marks)

**Q5.**

(a) Compare and contrast cash flow forecasting at Corporate level and Project level for a company handling construction projects.

(10 marks)

(b) You are appointed by a Contractor, as an Assistant to the Construction Manager. Your first assignment is to improve the effectiveness of Cost Control on site. Explain how you would set about finding information with regard to relevant 'information systems' already in operation.

(10 marks)

**Q6.**

(a) Discuss the factors to be considered in converting a final cost estimate for a project into a 'project budget' compatible with an organisation's cost accounts.

(08 marks)

(b) Schedule Control needs continuous monitoring of a project. Discuss possible problems that can be encountered in the construction of an underground waterline, their effect on the planned project schedule and what changes need to be made in each instance in order to ensure meeting the completion deadline.

(12 marks)