

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



Final Examination – 2016/17

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

Time Allowed : Three Hours

Date: 24th November 2017

Time: 0930-1230 hrs.

This paper consists of six questions.

Answer a **total of four (4)** questions including **Q1** and any three (3) questions from **Section B**

Section A (Q1) is compulsory and carries 40 marks.

You are advised to spend about one hour on this question. Graph sheets will be provided.

SECTION A - Compulsory (40 marks)

Q1.

- (a) List eight types of important data in order of priority, required to prepare a cash flow forecast of a construction project at pre-tender stage. (08 marks)
- (b) Explain how you can obtain the Value vs Time curve using two (02) different methods. (04 marks)
- (c) A contractor's project budget showing project value month by month is given in the table below:

Item/Month	1	2	3	4	5	6
Project value Rs. '000	220	440	770	660	550	330

The Profit Margin is uniform and is 10% of the Cost.

The Conditions of Contract allow interim measurements to be made monthly. Payment of the amount certified less 10% retention is to be paid to the contractor one month later. Half the retention is included in the final certificate on practical completion and the other half is released six months after practical completion.

Outgoing cash flows are met one month after the costs have been incurred.

No Advance payment is given to the contractor.

- (i) Calculate the contractor's cash flow. (15 marks)
- (ii) Draw the cash input and output graphs. Indicate the capital lock-up. (05 marks)
- (d) Any control system involves certain overheads. How can you find the optimal point, which gives the most economical expenditure on 'Cost Control'? (08 marks)

SECTION B – Answer any three (03) questions**Q2.**

- (a) Give clear reasons to explain why construction contractors should not disregard cash flow forecasting. (08 marks)
- (b) Contractors do cash flow forecasting at the 'Estimating and Tendering' stage of a project and at 'Company Level'. Describe the significance of each type of forecast for a construction company. (12 marks)

Q3.

- (a) 'Performance' of construction projects always shows a variance to the planned performance. Explain the types of Performance that can be measured using the following curves:
- (i) 'cash in' and 'cash out' curve
 - (ii) 'cost' and 'value' curve
 - (iii) 'cost' and 'cash out' curve
 - (iv) 'Value' and 'cash in' curve (10 marks)
- (b) Explain how claims affect a contractor's cash flow. (10 marks)

Q4.

- (a) Explain the 'Sensitivity Analysis' technique which evaluates errors in cash flows for construction projects. (10 marks)
- (b) Differentiate between 'cost cutting' and 'cost control'. Give five (05) 'cost cutting' measures that can be taken on construction sites and discuss their effects on the quality of the final product. (10 marks)

Q5.

- (a) Discuss the significance of 'Performance Ratios' in measuring a project's performance with regard to **time, cost and production**. (10 marks)
- (b) When calculating variances of a road construction project at the end of six months, it is found that there is an adverse variance for the item 'construction materials'. Identify possible reasons and discuss remedial measures for the future. (10 marks)

Q6.

As the assistant to the Project Manager you are to improve the effectiveness of 'Cost Control' on a road construction project. The initial cash flow forecast is available.

- (a) Explain how you will design a good cost control system for the project. (12 marks)
- (b) Discuss the practical problems in cost monitoring for the above project. (08 marks)