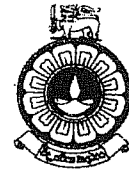


THE OPEN UNIVERSITY OF SRI LANKA  
Department of Civil Engineering  
Construction Management Programme -Level 7  
CEX7101 - Planning and Control in the Construction Industry  
FINAL EXAMINATION - 2015/2016



041

Time Allowed: Three Hours

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Date: 17-11-2016 (Thursday)

Time : 0930-1230 hrs.

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Section A and Section B consist of three questions each.  
Select two (2) questions from **each section** and answer a total of four (04) questions.  
Graph sheets will be provided for Q5.

**Section A**

**Q1.**

Discuss the essential matters that need consideration in formulating a policy for the Construction Industry of Sri Lanka stating how far they have been taken into account in the most recent draft to be presented to parliament. (25 marks)

**Q2.**

(a)

Discuss by citing suitable examples, how the following strategies will help in the survival and development of domestic construction contractors.

- (i) Simplification and diversification of activities
- (ii) Using tactical planning for survival
- (iii) Using a Multiple-Contracts approach

(15 marks)

(b)

The construction sector is used in many countries as an economic regulator. Has Sri Lanka done the same in the recent past? Discuss.

(10 marks)

**Q3.**

(a) There can be drastic changes in demand for construction from time to time. List out and discuss the factors causing changes in demand.

(15 marks)

(b) When an engineer is designing capital works for a developing country, he should "Produce a simple design which makes the best use of local materials and abundant cheap labour". Discuss the advantages and disadvantages of resorting to this method.

(10 marks)

**SECTION B**

**Q4.**

(a) Explain the difference between “Resource Allocation” and “Resource Aggregation” using a simple example from the construction industry.

(05 marks)

(b) Given in the table below are a set of activities taken from a construction project.

Activity	Can commence	Duration (days)	Workmen required
1-2	At project start	9	6
1-3	At project start	4	4
1-4	At project start	3	15
1-5	At project start	13	10
2-6	When 1-2 is complete	7	5
4-7	When 1-3 & 1-4 are complete	8	6
5-6	When 1-5 is complete	7	5
5-7	When 1-5 is complete	15	8
5-8	When 1-5 is complete	13	6
6-8	When 2-6 & 5-6 are complete	5	4
7-8	When 5-7 & 4-7 are complete	9	7

Draw a Precedence network ( Activity-on-Node network) for the above set of activities completing the node information including the Early Start & Late Start. Indicate the Critical Path. Tabulate the Total floats of all activities.

(10 marks)

Workmen required for each activity are given in the table. Assign workers based on an early start schedule and draw a resource aggregation chart.

Adjust the worker requirements based on the floats of activities, so that a maximum of 26 workers are used at any given time.

(10 marks)

**Q5.**

A client needs to construct a Supermarket Complex in a congested township. He has acquired a land covering an area of 0.4 ha (Approximately one acre) consisting of old buildings to be demolished. The land is surrounded by shops and other buildings. This proposed market complex consists of a ten storeyed building, a car park, a water supply network with overhead tank, and a security office.

He has plans to complete the project in three years. He has performed a cash flow forecast and in order to reduce capital lock-up he wishes to complete a part of the complex and rent the shops within one year of starting the project.

He has come to you to seek advice on how he should plan and construct this complex; the first part in one year and the second (up to completion) in the remaining two years.

(i) Making reasonable assumptions to justify your answer, prepare a work breakdown structure based on the methodology you hope to adopt in executing the construction of this project.

(13 marks)

(ii) Briefly describe the Pre-Contract phase of the project.

(12 marks)

Q6.

(a) Discuss the items to be included in a monthly Progress Reporting Procedure for a road construction project, giving justifications.

(10 marks)

(b) Describe the Value Curve method for Progress Control. Use an example from the road construction industry to indicate how the planned & actual values for work can be calculated each month.

Use relevant illustrations and state all assumptions made.

(15 marks)