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



Final Examination – 2014/15

CEX7101 - Planning and Control in the Construction Industry

Time Allowed: Three Hours

Date: 4th August 2015

Time: 0930-1230 hrs.

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**.

Section A

Q1.

(a) Provide a brief overview of the present structure of the construction industry in Sri Lanka (15 marks)

(b) Describe the 'forward' and 'backward' linkages of the construction industry and also comment on its contribution to the GDP (10 marks)

Q2.

(a) Explain the conflict faced by a contractor in attempting to control time, cost and quality. (12 marks)

(b) Describe a system a contractor could adopt, either by using a planning technique or other, in order to measure performance and hence progress of construction activities on a regular and frequent basis, highlighting any implementation problems. (13 marks)

Q3.

(a) Discuss the important planning functions to be considered by the Clients during the appraisal and design stage of a construction project. (10 marks)

(b) Explain how the Client the Consultant and the Contractor needs to work hand-in-hand in creating a healthy construction industry. (15 marks)

Section B

Q4.

The Table below gives a schedule of activities for a concreting process.

Table 4.1

Activity	Description	Duration (weeks)	Resources (men)
1-2	Excavate foundations and basement-stage 1	2	2
2-3	Excavate foundations and basement-stage 2	6	4
2-4	Concrete foundations-stage 1	3	3
3-5	Water proof lining to basement	6	3
3-4	Break out old sub-structure	1	1
4-5	Concrete foundations-stage 2	3	3
5-6	Concrete basement walls	2	2

- (i) Draw a complete activity-on-arrow network and an activity-on-node network showing durations, event numbers and event times. (08 marks)
- (ii) Indicate the critical path on both diagrams and calculate the total floats of activities. (04 marks)
- (iii) Draw a bar chart based on the earliest start times and the latest start times. (05 marks)
- (iv) Prepare a resource aggregation chart for resources (men) based on the earliest start order. Discuss how resources can be smoothed. (08 marks)

Q5.

- (a) Explain how you can exercise Progress Control on a project where the work programme is based on the critical path method. (07 marks)
- (b) Describe the method of progress control through 'Percentage Completion Method'. (08 marks)
- (c) Illustrate a suitable Work Breakdown Structure and Work Packages for the construction of a large hydropower project which involves; the construction of several dams, many hydro power & power projects, new town development projects and a road network including many bridges and culverts. State any suitable assumptions you may make. (10 marks)

Q6.

Write short notes on any four of the following:

- (a) Employment, underemployment and the construction industry
- (b) The importance of developing the domestic building materials industry
- (c) Why 'planning' is important for construction projects
- (d) Use of innovative approaches in the preparation of work programmes
- (e) Use of the Line-of-Balance schedule for planning

(6.25 marks each= 25 marks)