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

Final Examination – 2012/13

CEX7101 - Planning and Control in the Construction Industry

Time Allowed: Three Hours

Date: 23rd July 2013 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 nature (in comparison to other industries) and structure of the construction industry in Sri Lanka (15 marks)

(b) There are several essential matters that need consideration in formulating a policy for the construction industry in Sri Lanka. Discuss the salient points in brief. (10 marks)

Q2.

(a) For survival and development, a contractor has to resort to many strategies. Firstly he has to be aware of the changes in demand for construction. Explain factors causing changes in demand and discuss how Simplification & Diversification can help him survive. (15 marks)

(b) What is the importance of developing the domestic building materials industry? What steps should be taken to protect and foster its development? (10 marks)

Q3.

(a) With the establishment of Provincial Councils, decentralised planning process starts at village level. Explain the role of the Engineer in the process of planning District Development Programmes by Provincial Planning Committees, with reference to engineering related projects. (10 marks)

(b) Draw a typical value curve for a road project and explain the advantage of the 'value curve' as a tool for progress control (08 marks)

(c) Analyse the following quote in relation to the construction industry.
"Long range planning does not deal with future decisions, but with the future of present decisions" (07 marks)

Section B

Q4.

(a) The table below describes the construction sequence of a project and lists the activities with their durations and dependencies.
Construct an Activity-on-Node network diagram for the project indicating early start time(EST), late start time(LST), early finish time(EFT) and late finish time (LFT) on the nodes.
Indicate the critical path and determine the overall project duration.

(13 marks)

Table 1

Activity	Duration (weeks)	Precedence
A	2	none
B	3	A
C	4	A
D	1	A
E	5	B,C
F	3	D
G	7	D
H	3	E
I	8	Can start only 3 weeks after E has finished and after F has finished
J	4	F, G
K	1	H
L	3	Has to start 2 weeks before I has finished and after J has finished
M	6	K
N	3	L
O	4	M, N

(b) If a project is behind schedule a contractor may choose to increase resources, introduce overtime working, or schedule overlapping activities. Discuss the benefits, cost and risks associated with each of these options. (12 marks)

Q5.

(a) Illustrate the usefulness of deviating from the conventional presentation of bar charts to more dynamic and innovative forms. (05 marks)

(b)
A set of activities for a project are given below. The man power requirement per day of activity is also given.
Table 2

Activity	Duration (days)	Preceding activity	Labour requirement per day
A	2	-	4
B	4	-	3
C	8	A	11
D	5	A	7
E	7	B,C	3
F	2	D	3
G	3	E,F	6

(i) Draw the complete activity-on-arrow network diagram indicating the activity times and the critical path. (08 marks)

(ii) Prepare bar charts based on early start time and late start time. (06 marks)

(iii) Perform resource smoothening and draw the histogram for Labour after leveling (06 marks)

Q6.

Write short notes on all five of the following:

(a) Citing an example explain the use of 'Work breakdown structures & Work packages' in the management of a small construction project

(b) State the advantages of using sub-nets in network construction

(c) Explain how you can exercise Progress Control on a project where the work programme is based on the critical path method

(d) State the factors which affect the choice of a 'planning technique' for a construction project giving reasons

(e) There are several dimensions to the problem of 'underemployment'. State them in brief.

(5 marks each = 25 marks)