Sanjay Ghodawat University, Kolhapur 2019-20

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Year and Program:2019-20 **School of Technology** **Department of Civil Engg. (M. Tech)**

Course Code: CEM 501R1 **Course Title: Project Planning and Control** **Semester – I**

Day and Date Monday 16/12/19 **End Semester Examination (ESE)** **Time: 3hr Max Marks: 100** 10.30 am to 1.30 pm

Instructions:
1) All questions are compulsory.
2) Assume suitable data wherever necessary.
3) Figures to the right indicate full marks.

		Marks	Bloom's Level	CO
Q.1	**Solve the following questions.**			
a)	Illustrate different phases involved in any construction project	10	L_3	CO1
	OR			
a)	Explain work break down structure(WBS) with suitable example in construction field	10	L_3	CO1
Q.2	**Solve the following questions**			
a)	A project consist of following activities	10	L_3	CO2

Activity	A	B	C	D	E	F	G	H
Duration (Weeks)	2	4	2	4	6	4	5	4

Relation between activities are given as follows

1) A and B can be performed in parallel

2) C and D cannot start until A is complete

3) E cannot start until half the work of activity C is complete

4) F can start only after activity D is complete

5) G succeeds C

6) H is last activity which should be succeed E

Draw bar chart and find Completion time of project

OR

a)	Describe bar charts with its limitation	10	L_3	CO2

ESE

Q.3 **Solve the following questions**

a) A network consists of following activities and their durations. Draw the network and mark critical path also find total float and free float 10 L_4 CO2

Activity	1-2	2-3	2-4	3-5	3-6	4-5	5-7	6-7
Duration (Days)	5	14	15	12	16	14	13	10

OR

a) A network consists of following activities and their durations. Draw the network and mark critical path and find total float and free float 10 L_4 CO2

Activity	1-2	2-3	2-4	3-4	3-5	4-6	5-6
Duration (Weeks)	14	13	16	15	17	19	12

Q.4 **Solve the following questions**

a) Following data pertains to a project. Draw PERT network and find probability of completing the project in 35 days 10 L_4 CO3

Activity	1-2	1-3	2-4	2-5	3-4	3-5	4-5
t_o	6	5	4	4	4	2	4
t_L	9	8	7	7	7	5	10
t_p	18	17	22	10	16	8	22

Also mark critical path in network

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Q.5 **Solve the following questions**

a) Describe concept of network updating Explain data required for network updating — 10 — L_3 — CO3

OR

a) Explain following terms — 10 — L3 — CO3

1) Normal Duration

2) Crash Duration

3) Normal cost

4) Crash Cost

b) Following data pertains to a project. Calculate optimum duration of the project and corresponding minimum cost if indirect cost of project is Rs-3000 per week — 15 — L5 — CO3

Activity	Normal Duration (weeks)	Normal Cost (Rs)	Crash Duration (weeks)	Crash Cost (Rs)
1-2	6	7000	3	14500
1-3	8	4000	5	8500
2-3	4	6000	1	9000
2-4	5	8000	3	15000
3-4	5	5000	3	11000

c) Explain Concept of Resource leveling — 05 — L_3 — CO4

Q.6 **Solve the following questions**

a) Following data given for small project draw network. The network is to be updated after 10 days of its execution. the following data collected at end of 10 days — 15 — L_6 — CO3

Activity	1-2	1-3	1-4	2-5	3-6	4-5	4-6	4-7	5-7	6-7
Duration	6	7	4	0	4	12	10	8	5	6

1) Activity 1-2,1-3,1-4 have been completed as originally scheduled

2) Activity 4-5 is in progress and will require more 6 days for its completion

3) Activity 4-6 is in progress and will require 6 more days for its completion

4) Activity 3-6 is in progress and will completed in 1 day

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5) Other activities have not been commenced and their original predicated duration will hold good , except for activity 5-7 which will require only 3 days instead of 5 days originally planned.

Update the network and determine the critical path of updated network. what is the total increases in the project duration

b) Draw a network find critical path also draw histogram for masons and labour with following data 15 L_4 CO4

Activity	Duration	Masons(M)	Labours(L)
1-2	2	1	2
2-3	3	2	2
2-4	4	3	2
2-5	2	1	3
3-10	4	2	2
4-6	2	3	2
4-7	4	3	3
5-9	4	5	3
6-8	2	1	2
7-9	5	1	3
8-9	3	-	4
9-11	2	1	1
10-11	3	1	2
11-12	2	1	2

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