Paper / Subject Code: 58902 / Management and Project Planning in Construction.

ME Civil / I / Choice base / Second half 2018 03/12/2018

(3 Hours) **[Total Marks : 80]**

Notes :

1. Attempt any **FOUR** questions out of six questions
2. **ASSUME** any additional data if necessary and state it clearly
3. Draw **FIGURES** wherever necessary .Figures to the right indicate full marks
4. **WRITE** proper question / sub question numbers on the left margin allotted in answer sheet.

1. a) Following table shows the data of small construction project. Draw the network diagram and update the network by using the following conditions at the end of 10 days. What is the change in the project duration? What is remaining duration of project? [10]

Activity	1-2	2-3	2-4	3-5	4-5	5-6	5-7	6-7
Duration (Days)	4	6	5	2	1	4	6	6

At the end of 10 days review was taken which indicates ------

- Activity 1-2 & 2-4 was completed as originally planned.
- Activity 2-3 & 3-5 delayed drastically and requires 5 & 6 more days respectively for their completion.
- Activity 4-5 & 5-6 is in progress and both require 8 more days for their completion.
- Activity 6-7 yet to start and the original time estimate still appear to be accurate.
- Activity 5-7 requires 8 days in place of 6 days for its completion.

b) Explain any five principles of scientific management [05]

c) Explain what you understand by a DPR. [05]

2. **a)** Following data is for small construction Project. Draw a network. Calculate expected mean time for each activity. [08]

Activity	Estimated duration in days		
	Optimistic	Most likely	Pessimistic
1-2	5	10	22
2-3	2	5	8
2-4	4	7	15
2-5	4	7	10
3-5	4	7	14
4-5	5	8	11
5-6	6	9	15

Compute the probability of completing the project in 30 days. Also, find out the duration corresponding to 80% chances of completion. Consider the following Z-table for computations.

Z	-3	-2	-1	0	1	2	3
Probability	0.0013	0.0228	0.1587	0.5	0.8413	0.9772	0.9987

b) Explain roles of Project Management Consultants and Project Manager [06]

c) What is Project Pre-planning? State the advantages of project Pre-planning. Explain various sub-phases - involved in Project Pre-planning [06]

3. **a)** Differentiate between Resource leveling and Resource smoothing with an example. [06]

b) Write a short note LOB Technique and Mass haul diagram. [08]

c) What is scientific management? Describe following management styles. [06]

i) Autocratic.
ii) Democratic.
iii) Laissez - faire.

4. a) The following data refers to time motion study of a RMC-transit mixer filling operation for earth moving activity: [08]

Obs. no.	Time reqd. for transit mixer to enter marked area of RMC yard (sec.)	Time reqd. for adjust-ment of transit mixer below the RMC funnel (sec.)	Time reqd. to pour concrete in transit mixer (sec.)	Time reqd. to ensure transit mixer is ready to move out of yard without concrete spillage (sec.)	Time reqd. for transit mixer to move out of the marked area of RMC yard (sec.)
1	45	111	210	191	42
2	55	156	285	145	46
3	35	140	183	185	35
4	52	189	131	136	54
5	58	133	155	145	92

Based on statistical analysis, determine which sub-activity is most efficiently performed and which is least consistently performed. Comment on what may be the possible reasons for the poor performance of the sub-activity

b) Discuss Site mobilization and demobilization aspects involved in a highway project. [06]

c) State the application of MIS in construction. [06]

5. a) What are Work Study applications in Civil engineering. [04]

b) From Followings Construction Activities, Draw PDM Network and Find ES, EF LS , LF & Critical Path [10]

Activity	Start	A	B	C	D	E	F	G	H	I	J	K	End
Predecessor	-	Start	Start	A(SS+3)	Start	B	A (FS-1)	A,D	C	F, H(FF-2)	E(FS+2), G(FF+3)	E	I,J,K
Duration	0	7	5	11	10	9	5	8	8	4	12	3	0

c) Explain method study. Describe various techniques used for method study [06]

6. a) Give the factors included in computing indirect cost of accidents. [04]

b) Explain project clearance procedure and necessary documentation for mega Structures. [05]

c) State and explain various software used in construction project scheduling. [04]

d) Design a short training programme for site engineers on tunnel site. [07]