

**B.TECH. SEM -V (CIVIL) 2014 COURSE (CBCS) : SUMMER -
2018**

SUBJECT : ENGINEERING PROJECT MANAGEMENT

Day : **Wednesday**
Date : **23/05/2018**

S-2018-2331

Time **10.00 AM TO 01.00 PM**
Max. Marks : 60

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of non-programmable calculator is allowed.
- 4) Assume suitable data if necessary.

- Q.1** a) What are the different categories of project ? Explain them briefly. (05)
b) Prepare PWD organization chart and explain duties of each person involved. (05)

OR

- a) What are the authorities and responsibilities of project manager? (05)
b) Explain the function of management. (05)

- Q.2** Draw the network and find out EST, EFT, LST, LFT, Total float and free float. Also show the critical path on the network. (10)

Activity	1-2	2-3	2-4	3-5	5-6	6-7	4-6
Duration (weeks)	12	10	14	11	18	2	4

OR

- Draw the network and find out standard deviation and variance for PERT network. (10)

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

- Q.3** Determine the optimum cost and optimum duration for the given project. (10)
The data of each activity of network is given in the table. The indirect cost is Rs. 400 per day.

Activity	Normal		Crash	
	Duration (Days)	Cost (Rs)	Duration (days)	Cost (Rs.)
0-1	3	5000	2	5500
1-3	14	10000	11	13000
1-2	7	6000	4	9000
2-3	9	11000	6	18000
3-4	4	9000	3	12000
4-5	3	6000	2	7800

OR

- a) Explain resource allocation and resource levelling. (05)
b) What is updating of network give the stepwise procedure for updating of network? (05)

P.T.O.

- Q.4** a) A manufacturing company purchases 9000 parts of a machine for its annual requirement, ordering one month usage at a time. Each part costs Rs. 20. The ordering cost per order is Rs. 15 and the carrying charges are 15% of the average inventory per year. Suggest more economical purchase policy. (05)
- b) Describe the cost associated with inventories also define inventory. (05)

OR

- a) What are the inventory models explain them briefly. (05)
- b) Explain EOQ, lead time, order quantity, safety stock, reorder point. (05)

- Q.5** Find the solution of L.P. problem graphically (10)

$$\begin{aligned} \text{Minimize } Z &= 3x_1 + 2x_2 \\ \text{Subject to } & 8x_1 + x_2 \geq 8 \\ & 2x_1 + x_2 \geq 6 \\ & x_1 + 3x_2 \geq 6 \\ & x_1 + 6x_2 \geq 8 \\ & x_1, x_2 \geq 0 \end{aligned}$$

OR

- Solve the following L.P.P. by Simplex method (10)

$$\begin{aligned} \text{Minimize } Z &= -x_1 - 2x_2 - x_3 \\ \text{Subject to } & 2x_1 + x_2 - x_3 \leq 2 \\ & 2x_1 - x_2 + 5x_3 \leq 6 \\ & 4x_1 + x_2 + x_3 \leq 6 \\ & x_1, x_2, x_3 \geq 0 \end{aligned}$$

- Q.6** a) Define TQM and explain elements of TQM? (05)
- b) Discuss the applications of TQM in construction industry. (05)

OR

- a) Differentiate between traditional management and TQM. (05)
- b) What is the importance of TQM in construction process and give the steps involved in it? (05)

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