Degree/8th/UCE 801

2024

Construction Engineering and Project Management

Full Marks: 100

Time: Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1.	a)	Define the term project management. Explain in brief the phases of project management.	10
	b)	What is job layout. What are the various points to be considered for the preparation of plan for job layout and objectives of preparing job layout. What are the various factors affecting the job layout	10
2.	a)	Define the terms: Network diagram, activity, event, critical path, float, slack, pessimistic time estimate, and dummy.	08
	b)	What is Economic order of quantity? Calculate the EOQ of material M, how many orders should be placed in a year and how often should an order be placed? The details are given below Annual usage= 48000 units, Buying cost per order =Rs 9, Cost of carrying inventory=15% of cost, Cost per unit = Rs 4	05
	c)	List down the various advantages of preparing schedules. Explain various schedules in project.	07
3.	a)	Define the term tender. List down the items included in tender documents	06
	b)	Briefly explain different types of error in network diagram	06
	c)	List down the principles of material handling and the precautionary measures to be taken while handling of material.	08
4.	a)	Compare between PERT and CPM	06
	b)	Mention various type of contract. Explain any three of them in detail	14
5.	a)	Construct a network for the project whose activities and precedence are given below:	04

Activities	A	B	C	D	E	F	G	H	I	J	K
Precedence	-	-	-	A	B	B	C	D	E	H, I	F, G

b) For a given project schedule characteristic 16

Activity	Times in days
1-2	4
1-3	1
2-4	1
3-4	1
3-5	6
4-9	5
5-6	4
5-7	8
6-8	1
7-8	2
8-10	5
9-10	7

a) Construct network diagram
b) Compute earliest event time and latest event time of each activity
c) Determine the critical path and total project duration
d) Compute the total float and free float for each activity

6. a) Explain the difference between subletting and arbitration in project management 04

b) Draw an arrow diagram and find critical path, earliest start time and Latest start time of all the events 16

The table below shows the activities of a construction project

Activities	1-2	1-3	1-4	2-5	3-4	4-6	4-7	5-7	6-7
Time (in weeks) T_o	2	3	2	3	3	2	5	2	4
Time (in weeks) T_m	8	7	5	4	6	4	9	3	9
Time (weeks) T_p	14	11	8	5	9	6	13	10	14

a) Draw the project network and show the critical path

b) Find the expected time and variance of each activity

c) Calculate the earliest time and latest time of each event

d) Calculate the expected project length

e) Calculate the variance and standard deviation of project length.