

Guru Nanak Dev Engineering College, Ludhiana

Department of Civil Engineering

Program	B.Tech.	Sem	6 th
Sub. Code	OECE-103	Subject	Project Management & Monitoring
MST	1	Teacher	Prabhjot S., Gurpreet S. Manmohan S. Arpan S.
Max. Mark	24	Time	1 hour 30 minutes
Date	19-3-2025	R.No.	

Note: Attempt all questions

Q. No	Question	Mark
Q1	Differentiate between Gantt bar chart & Milestone chart.	2
Q2	Categorize the various rules for provision of Dummies in network.	2
Q3	Planning is the starting point of all management functions. Discuss.	4
Q4	Draw the network for the following project & Apply Fulkerson's rule for arranging the events in the network :- - A is start event and K is end event - A precedes event B. - J is successor event to F, - C and D are successor events to B. - D is preceding event to G, - E and F occur after event C, - C restrains the occurrence of G and G precedes H, - H precedes J and K succeeds J, - F restrains the occurrence of H.	4
Q5	What is meant by probability distribution curve? Differentiate clearly between normal probability distribution curve and beta distribution.	4
Q6	Draw the project network, find the expected duration and variance of each activity. Calculate the earliest, latest occurrence time and <u>slack</u> for each event & determine the critical path.	8

Activity	Optimistic Time	Most Likely Time	Pessimistic Time
1-2	1	7	13
1-6	2	5	14
2-3	2	14	26
2-4	2	5	8
3-5	7	10	19
4-5	5	5	17
6-7	5	8	29
5-8	3	3	9
7-8	8	17	32

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Program	B.Tech.	Sem	6 th
Sub. Code	OECE-103	Subject	Project Management & Monitoring
MST	2	Teacher	Gurpreet Singh, Manmohan Singh, Prabhjot Singh, Arpan Singh
Max. Mark	24	Time	1 hour 30 minutes
Date	14-5-2025	U.R.No.	

Note: Attempt all questions

Q. No	Question	Marks																																																		
Q1	What is difference between PERT and CPM.	2																																																		
Q2	Why there is a need to update the network?	2																																																		
Q3	Name any two software's which can be employed for planning and monitoring of a project?	4																																																		
Q4	Discuss the different types of floats and explain their significance?	4																																																		
Q5	Explain the method of time cost optimization of project network.	4																																																		
Q6	Consider the data of a project as shown in the following table:	8																																																		
	<table><tr><th>Activity</th><th>Normal Time (weeks)</th><th>Normal Cost (Rs)</th><th>Crash Time (weeks)</th><th>Crash Cost (Rs)</th></tr><tr><td>1-2</td><td>7</td><td>700</td><td>4</td><td>850</td></tr><tr><td>1-3</td><td>5</td><td>500</td><td>3</td><td>700</td></tr><tr><td>1-4</td><td>8</td><td>600</td><td>5</td><td>1200</td></tr><tr><td>2-5</td><td>9</td><td>800</td><td>7</td><td>1250</td></tr><tr><td>3-5</td><td>5</td><td>700</td><td>3</td><td>1000</td></tr><tr><td>3-6</td><td>6</td><td>1100</td><td>5</td><td>1300</td></tr><tr><td>4-6</td><td>7</td><td>1200</td><td>5</td><td>1450</td></tr><tr><td>5-7</td><td>2</td><td>400</td><td>1</td><td>500</td></tr><tr><td>6-7</td><td>3</td><td>500</td><td>2</td><td>850</td></tr></table>	Activity	Normal Time (weeks)	Normal Cost (Rs)	Crash Time (weeks)	Crash Cost (Rs)	1-2	7	700	4	850	1-3	5	500	3	700	1-4	8	600	5	1200	2-5	9	800	7	1250	3-5	5	700	3	1000	3-6	6	1100	5	1300	4-6	7	1200	5	1450	5-7	2	400	1	500	6-7	3	500	2	850	
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	If the indirect cost per week is Rs. 200, Find the optimal crashed project completion time.																																																			

Please check that this question paper contains 09 questions and 03 printed pages within first ten minutes

[Total No. of Questions: 09]

Unl. Roll No. 9203751

[Total No. of Pages: 03]

Program: B.Tech. (Batch 2018 onward)

Semester: 6th

Name of Subject: Project Management and Monitoring

Subject Code: OECE-103

Paper ID: 17154

Scientific calculator is Allowed

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

- 1) Parts A and B are compulsory
- 2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
- 3) Any missing data may be assumed appropriately

Part - A

[Marks: 02 each]

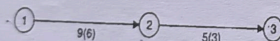
Q1.

- a) Explain the difference between PERT and CPM
- b) Outline the concept of various types of time estimates in PERT
- c) Summarize the terms: **ACTIVITY** and **EVENT**; explaining its importance in project management
- d) Discuss the shortcomings of Bar Chart
- e) Categorize the various rules for provision of Dummies in a network
- f) Illustrate the various types of floats used in CPM

Part - B

[Marks: 04 each]

- Q2. What is the meaning of 'Probability distribution curve'? Discuss the difference between normal probability distribution and beta distribution
- Q3. Discuss the classification of various types of activities on the basis of 'degree of float'. What is the significance of these activities in CPM network analysis?
- Q4. Explain, why planning in project management is necessary? Enlist also, the various steps for planning a project
- Q5. Table gives the information about various activities of network shown in fig.



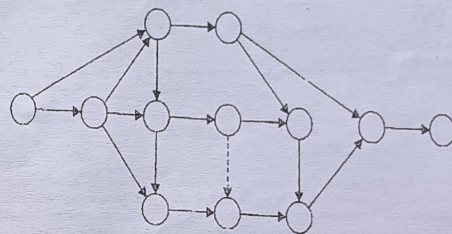
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P.T.O.

Activity	Normal Duration(Days)	Normal Cost(Rs.)	Crash Duration(Days)	Crash Cost(Rs.)
1-2	9	8000	6	9500
2-3	5	5000	3	5500

The Project overhead costs are @ Rs.300/- per day. Determine the minimum cost at optimum time duration for the project

Q6. Number the events for the following Network using D.R. Fulkerson's rule



- Q7. A project consists of SIX (6) activities designated from A to F, with the following relationships:
- (1) A is the first job to be performed
 - (2) B and C can be conducted concurrently, and must follow A
 - (3) B must precede D
 - (4) E must succeed C, but it cannot start until B is completed
 - (5) The last operation F is dependent on the completion of both D and E
- Draw the Network Diagram

Part - C

[Marks: 12 each]

- Q8. Enumerate the term: 'UPDATING A PROJECT'. Why is it necessary? Discuss, when updating should be performed & what methods can be adopted for updating the project

OR

Discuss in detail with suitable examples, the various methods by which a Critical Path can be determined in project management and monitoring for both PERT & CPM network analysis

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P.T.O.