Sub Code: R2331015C **R23** **Set No. 1**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY-GURUJADA VIZINAGARAM
III B. Tech I Semester Regular Examinations November -2025
CONSTRUCTION TECHNOLOGY & MANAGEMENT
(Civil Engineering)

Time: 3 hours **Max. Marks: 70**

The Question paper consists of Part A & Part B.
Part A is compulsory, Answer all questions. Part B Answers any one question from each unit.

1		PART-A	(20Marks)
	a)	Define modern scientific management in the context of construction projects.	[2]
	b)	What is the difference between traditional management and modern scientific management?	[2]
	c)	List out Two popular software tools used for construction scheduling	[2]
	d)	Differentiate between CPM and PERT techniques.	[2]
	e)	List any four resources typically managed in a construction project.	[2]
	f)	What is the role of MIS in construction management?	[2]
	g)	What is a flow process chart? List two uses in work measurement.	[2]
	h)	What is a string diagram? When is it used in method study?	[2]
	i)	What are two key responsibilities of a safety engineer on a construction site?	[2]
	j)	Define Personal Protective Equipment (PPE) and give two examples.	[2]
		PART-B	(50Marks)
		Question from **Unit - I**	
2	a)	Illustrate the steps involved in conducting a SWOT analysis for a large infrastructure project.	[5]
	b)	Describe the basic forms of organization structures used in construction project management, giving emphasis on project and matrix forms	[5]
		(OR)	
3	a)	Differentiate between various management styles and discuss how they influence project performance in construction.	[5]
	b)	Explain the major management functions with suitable examples from construction sites.	[5]
		Question from **Unit - II**	
4	a)	Explain the procedure for preparing a construction schedule using CPM and PERT	[5]
	b)	What is a Work Breakdown Structure? Discuss its significance in the scheduling of construction projects.	[5]
		(OR)	
5	a)	Write a short note on the Repetitive Project Modeling (RPM) technique and its applications in construction management.	[5]
	b)	Demonstrate the procedure for estimating activity durations, defining dependencies, and preparing a baseline schedule for a	[5]

<table>
<tr><td></td><td></td><td>medium-scale construction project.</td><td></td></tr>
<tr><td></td><td></td><td>Question from Unit - III</td><td></td></tr>
<tr><td>6</td><td>a)</td><td>Explain the procedure and importance of monitoring and controlling a construction project with examples.</td><td>[5]</td></tr>
<tr><td></td><td>b)</td><td>Discuss the concept of crashing in project management. What are the steps involved in project crashing</td><td>[5]</td></tr>
<tr><td></td><td></td><td>(OR)</td><td></td></tr>
<tr><td>7</td><td>a)</td><td>The following table gives data on normal time and cost and crash time and cost for a project. (a) Draw the network and identify the critical path. (b) What is the normal project duration and associated cost? (c) Find out total float for each activity. (d) Crash the relevant activities systematically and determine the optimum project time and cost. The indirect cost can be taken as Rs. 150 per week.
<table>
<tr><th>Activity</th><th>Normal Time (weeks)</th><th>Crash Time (weeks)</th><th>Normal Cost (Rs/week)</th><th>Crashing Cost (Rs/week)</th></tr>
<tr><td>1–2</td><td>3</td><td>2</td><td>300</td><td>600</td></tr>
<tr><td>2–3</td><td>3</td><td>3</td><td>450</td><td>550</td></tr>
<tr><td>2–4</td><td>7</td><td>5</td><td>600</td><td>780</td></tr>
<tr><td>2–5</td><td>9</td><td>7</td><td>920</td><td>1010</td></tr>
<tr><td>3–5</td><td>5</td><td>4</td><td>450</td><td>550</td></tr>
<tr><td>4–5</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>5–6</td><td>6</td><td>4</td><td>800</td><td>1100</td></tr>
<tr><td>6–7</td><td>4</td><td>3</td><td>1000</td><td>1500</td></tr>
<tr><td>6–8</td><td>13</td><td>10</td><td>900</td><td>1200</td></tr>
<tr><td>7–8</td><td>10</td><td>9</td><td>1800</td><td>2000</td></tr>
</table></td><td>[10]</td></tr>
<tr><td></td><td></td><td>Question from Unit - IV</td><td></td></tr>
<tr><td>8</td><td>a)</td><td>What are the various factors affecting while selecting construction equipment?</td><td>[5]</td></tr>
<tr><td></td><td>b)</td><td>What is the cycle time in trucks and calculate the truck production.</td><td>[5]</td></tr>
<tr><td></td><td></td><td>(OR)</td><td></td></tr>
<tr><td>9</td><td>a)</td><td>Explain about the Hoisting and earthwork equipment in detail?</td><td>[5]</td></tr>
<tr><td></td><td>b)</td><td>Explain in detail about Jaw crushers and Gyratory crushers</td><td>[5]</td></tr>
<tr><td></td><td></td><td>Question from Unit - V</td><td></td></tr>
<tr><td>10</td><td>a)</td><td>Explain the administration of incentive schemes—their necessity, methods of merit rating, job evaluation, and steps to install or modify the schemes.</td><td>[5]</td></tr>
<tr><td></td><td>b)</td><td>Discuss detailed notes on the Minimum Wages Act, highlighting its importance for labour welfare in construction projects</td><td>[5]</td></tr>
<tr><td></td><td></td><td>(OR)</td><td></td></tr>
<tr><td>11</td><td>a)</td><td>Explain the concept of safety culture and discuss steps to develop a positive safety culture in a construction organization.</td><td>[5]</td></tr>
<tr><td></td><td>b)</td><td>Discuss the components of safety policy and explain the role of management and supervisors in enforcing safety on construction sites.</td><td>[5]</td></tr>
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