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Code No. : 18132 N/O

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD**

Accredited by NAAC with A++ Grade

**B.E. (Civil Engg.) VIII-Semester Main & Backlog Examinations, May-2023****Construction Management & Administration (PE-VI)**

Time: 3 hours

Max. Marks: 60

Note: Answer all questions from Part-A and any FIVE from Part-B

**Part-A (10 × 2 = 20 Marks)**

Q. No.	Stem of the question	M	L	CO	PO																														
1.	What are the main objectives of the Construction Management?	2	1	1	11																														
2.	From the following list choose "Events" and "Activity". Survey of site, Maps prepared, Interior design started, Earthwork excavation, Electrical fittings completed, Plastering, laying of footing, painting 1 <sup>st</sup> coat finished.	2	2	1	1																														
3.	Explain Total Float, Free Float for a Network.	2	1	2	1																														
4.	Explain the Fulkerson's rules for numbering the nodes in any Network.	2	2	2	1																														
5.	Draw Direct cost, Indirect cost and a typical total cost curve for a project and show on it the optimum duration and minimum project cost.	2	1	3	1,11																														
6.	Explain the necessity of Updating a project and the when updating is necessary.	2	2	3	1,9,11																														
7.	Differentiate between Tender document and Tender notice.	2	1	4	11																														
8.	Explain the causes of accidents on a construction site.	2	1	4	11																														
9.	Explain the application of Linear Programming.	2	1	5	2																														
10.	Explain the importance of Slack and surplus variables in Linear programming	2	2	5	2																														
<b>Part-B (5 × 8 = 40 Marks)</b>																																			
11. a)	Explain the main principles for developing an organizations for effective and efficient working.	5	1	1	9,11																														
b)	Explain the Functions of Construction management.	3	2	1	9,11																														
12. a)	What is a Work Breakdown Structure? Show the WBS for construction of a single independent house.	3	3	2	1,9																														
b)	Construct a Network Diagram from the given activity. Calculate the Total Float and determine the critical path for the network.	5	3	2	3																														
<table border="1"> <thead> <tr> <th>Activity</th> <th>Predecessor Activity</th> <th>Duration (Days)</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>-</td> <td>8</td> </tr> <tr> <td>B</td> <td>-</td> <td>10</td> </tr> <tr> <td>C</td> <td>-</td> <td>8</td> </tr> <tr> <td>D</td> <td>A</td> <td>10</td> </tr> <tr> <td>E</td> <td>A</td> <td>16</td> </tr> <tr> <td>F</td> <td>D,B</td> <td>17</td> </tr> <tr> <td>G</td> <td>C</td> <td>18</td> </tr> <tr> <td>H</td> <td>C</td> <td>14</td> </tr> <tr> <td>I</td> <td>F,G</td> <td>9</td> </tr> </tbody> </table>						Activity	Predecessor Activity	Duration (Days)	A	-	8	B	-	10	C	-	8	D	A	10	E	A	16	F	D,B	17	G	C	18	H	C	14	I	F,G	9
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13. a)	Explain the steps involved in the process of updating.	3	1	3	9,11																																										
b)	Find the optimum cost and time for the project given below. Consider Indirect cost as Rs 100/- per day.	5	3	3	2,3																																										
<table border="1"> <thead> <tr> <th>Node</th> <th>Activity</th> <th>Normal time (Days)</th> <th>Crash time (Days)</th> <th>Normal cost (Rs)</th> <th>Crash cost (Rs)</th> </tr> </thead> <tbody> <tr> <td>1-2</td> <td>A</td> <td>4</td> <td>2</td> <td>400</td> <td>500</td> </tr> <tr> <td>1-3</td> <td>B</td> <td>8</td> <td>5</td> <td>800</td> <td>980</td> </tr> <tr> <td>1-4</td> <td>C</td> <td>3</td> <td>2</td> <td>600</td> <td>700</td> </tr> <tr> <td>2-5</td> <td>D</td> <td>10</td> <td>6</td> <td>500</td> <td>600</td> </tr> <tr> <td>3-5</td> <td>E</td> <td>8</td> <td>6</td> <td>800</td> <td>950</td> </tr> <tr> <td>4-5</td> <td>F</td> <td>7</td> <td>4</td> <td>700</td> <td>1000</td> </tr> </tbody> </table>						Node	Activity	Normal time (Days)	Crash time (Days)	Normal cost (Rs)	Crash cost (Rs)	1-2	A	4	2	400	500	1-3	B	8	5	800	980	1-4	C	3	2	600	700	2-5	D	10	6	500	600	3-5	E	8	6	800	950	4-5	F	7	4	700	1000
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14. a)	Explain different types of contracts in Construction Management.	5	2	4	8,9,11,12																																										
b)	List the various safety measures to be adopted at the time of demolition of a building.	3	2	4	7,9																																										
15. a)	Differentiate between Graphical method and simplex method in Linear Programming.	3	3	5	1																																										
b)	Solve the given linear programming problem by Simplex method: Maximize $Z = 50X_1 + 15X_2$ subjected to $5X_1 + X_2 \leq 100$ , $X_1 + X_2 \leq 50$ , $X_1 \& X_2 \geq 0$ .	5	3	5	2,3																																										
16. a)	Explain the responsibilities of members in construction team.	4	1	1	8,9																																										
b)	List the differences between CPM and PERT method of Network techniques.	4	2	2	1,5																																										
17.	Answer any <i>two</i> of the following:																																														
a)	Write a short note Earned Value Management.	4	2	3	11																																										
b)	Explain the main conditions of a construction contract.	4	2	4	8,9,12																																										
c)	Solve the given linear programming problem by graphical method: Maximize $Z = 3X_1 + 2X_2$ subjected to $X_1 + X_2 \leq 4$ , $X_1 - X_2 \leq 2$ , $X_1 \& X_2 \geq 0$ .	4	3	5	2,3																																										

M : Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

i)	Blooms Taxonomy Level - 1	30%
ii)	Blooms Taxonomy Level - 2	38.75%
iii)	Blooms Taxonomy Level - 3 & 4	31.25%

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