


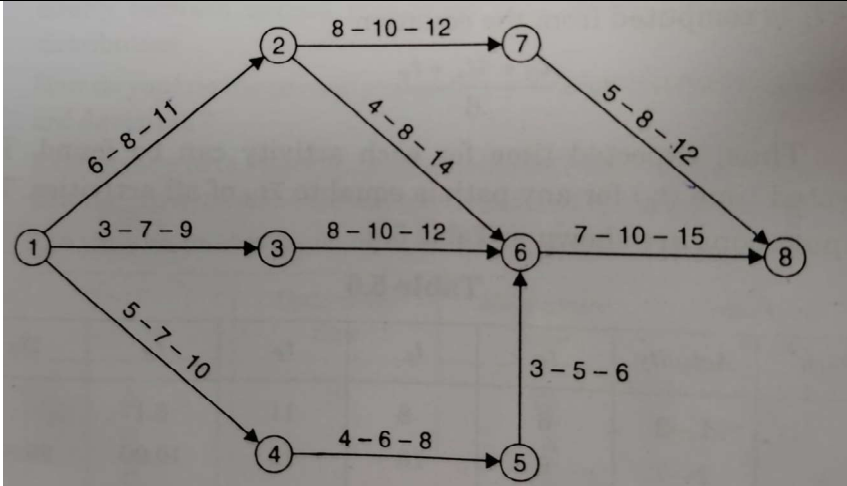
<b>Name:</b> <b>Enrolment No:</b>	
--------------------------------------	--

**UPES**  
**End Semester Examination, December 2024**

**Course: Construction Engineering & Management**      **Semester: VII**  
**Program: B. Tech Civil Engineering**                      **Time: 03 hrs.**  
**Course Code: CIVL 4065**    **Max. Marks: 100**

**Instructions: All questions are compulsory.**

**SECTION A**  
**(5Qx4M=20Marks)**

S. No.		Marks	CO
Q1	Explain the following with examples: 1) Force majeure situation 2) Indemnification	<b>4 (2+2)</b>	<b>CO1</b>
Q2	Consider the following and explain the relationships with the client and the contractor for each of them in terms of who is reporting to whom and a direct legal relationship exists. Client – Supreme Committee (SC) Main contractor – Tekfen Management consultant – MacHill Safety consultant – PaloAlto Sub – contractors – L&T, Al Jaber, HCC, Gamon Labor supplier – Al Dinsha, Al Nabeen, Al Hal, Al Maan Precast supplier – AL Star Industries	<b>4</b>	<b>CO2</b>
Q3	State the following concepts in terms of networking. 1. Optimistic time estimate 2. Pessimistic time estimate	<b>4 (2+2)</b>	<b>CO1</b>
Q4		<b>4 (2+2)</b>	<b>CO4</b>
For the above project network, determine the following:			

	1. Expected time for each path. 2. Critical path.		
Q5	Define slack and specify the formula to calculate slack. State its relevance in networking / planning.	4	CO3

**SECTION B**  
**(4Qx10M= 40 Marks)**

Q6	Explain the following contracts and the advantages and disadvantages associated with each of them. 1. Lump sum contract 2. Cost plus percentage contract	10 (5+5)	CO1
----	--	----------	-----

Q7	<p>Refer to the following bar chart and answer the questions below:</p> <p>1) When is resource 5 the most occupied (in terms of time consumed) as per the bar chart.</p> <p>2) State the total time which will be considered as maximum occupied for resource 5.</p>	<b>10</b>	<b>CO2</b>																								
<table border="1"> <thead> <tr> <th>Activity</th> <th>Resources</th> <th>Activity</th> <th>Resources</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>1</td> <td>F</td> <td>1</td> </tr> <tr> <td>B</td> <td>5</td> <td>G</td> <td>2</td> </tr> <tr> <td>C</td> <td>4</td> <td>H</td> <td>5</td> </tr> <tr> <td>D</td> <td>3</td> <td>J</td> <td>3</td> </tr> <tr> <td>E</td> <td>2</td> <td>K</td> <td>4</td> </tr> </tbody> </table>		Activity	Resources	Activity	Resources	A	1	F	1	B	5	G	2	C	4	H	5	D	3	J	3	E	2	K	4		
Activity	Resources	Activity	Resources																								
A	1	F	1																								
B	5	G	2																								
C	4	H	5																								
D	3	J	3																								
E	2	K	4																								

Q8	The activity breakdown of a project is given below. Prepare a bar chart for the project.	<b>10</b>	<b>CO4</b>				
<table border="1"> <thead> <tr> <th>Activity No.</th> <th>Duration (weeks)</th> <th>Interrelationship</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> <td>Activity 2 and 3 can be done concurrently and must follow activity 1.</td> </tr> </tbody> </table>				Activity No.	Duration (weeks)	Interrelationship	1
Activity No.	Duration (weeks)	Interrelationship					
1	1	Activity 2 and 3 can be done concurrently and must follow activity 1.					

	<table border="1"> <tr> <td>2</td> <td>2</td> <td>Activity 2 must precede activity 4.</td> </tr> <tr> <td>3</td> <td>4</td> <td>Activity 5 begins only after 2 and 3 are completed.</td> </tr> <tr> <td>4</td> <td>3</td> <td>Activity 6 begins after 4 and 5 are completed.</td> </tr> <tr> <td>5</td> <td>1</td> <td rowspan="3">Activity 7 is the last activity which begins after completion of activity 5.</td> </tr> <tr> <td>6</td> <td>2</td> </tr> <tr> <td>7</td> <td>4</td> </tr> </table>	2	2	Activity 2 must precede activity 4.	3	4	Activity 5 begins only after 2 and 3 are completed.	4	3	Activity 6 begins after 4 and 5 are completed.	5	1	Activity 7 is the last activity which begins after completion of activity 5.	6	2	7	4		
2	2	Activity 2 must precede activity 4.																	
3	4	Activity 5 begins only after 2 and 3 are completed.																	
4	3	Activity 6 begins after 4 and 5 are completed.																	
5	1	Activity 7 is the last activity which begins after completion of activity 5.																	
6	2																		
7	4																		
Q9	<p>Explain the different components of the contract document. Specifically detail the following:</p> <ol style="list-style-type: none"> <li>1. Contract Drawings</li> <li>2. Specifications</li> <li>3. Bill of quantities</li> <li>4. General conditions of the contract</li> <li>5. Tender</li> </ol> <p style="text-align: center;"><b>OR</b></p> <p>Explain the following:</p> <ol style="list-style-type: none"> <li>1. Choosing a tender</li> <li>2. Opening a tender</li> <li>3. Acceptance of tender</li> <li>4. Risk allocation</li> <li>5. Differing site conditions</li> </ol>	<b>10 (2*5)</b>	<b>CO2</b>																
<b>SECTION-C</b> <b>(2Qx20M=40 Marks)</b>																			
Q10	<p>On a dam building project in Pakistan bids were requested for the supply of technical equipment related to drilling operations. The project was supposed to be financed by the BRICS Bank. Out of the total bids received one bidder from the Netherlands offered equipment manufactured in Netherlands. The bid stated the equipment would be shipped to Pakistan on a ship registered in the Cayman Islands. Netherlands and Cayman Islands are not the member countries of BRICS.</p> <ol style="list-style-type: none"> <li>1. Explain the bidding process for the above.</li> <li>2. Also, given that the BRIC guidelines require that all parties involved in the bid not necessarily be member countries of BRICS, if the bid from Netherlands is accepted, will the BRICS finance the project in Pakistan, if yes why, if no why?</li> </ol>	<b>20 (15+5)</b>	<b>CO3</b>																
Q11	<p>The activity breakdown of a project is given below. Assume the project starts on 14<sup>th</sup> October (Wednesday) and there are 5 working days. Prepare the following:</p> <ol style="list-style-type: none"> <li>1. Bar chart clearly depicting the project duration and relevant information.</li> <li>2. State the total time, and date of completion of the project.</li> <li>3. State the expected progress by 10<sup>th</sup> November.</li> </ol>	<b>20</b> <b>(14+3+3)</b>	<b>CO4</b>																

Activity No.	Duration (days)	Interrelationship
1	3	Activity 2 can start after activity 1 is over.
2	5	Activity 3 can start when half of activity 2 is over.
3	11	Activity 4 and 5 can start concurrently but after activity 3 is over.
4	5	Activity 6 and 7 can start concurrently but only after activity 5 is complete.
5	2	Activity 8 can start only after activities 6 and 7 are complete.
6	3	Activity 9 can start when half of activity 8 is over.
7	3	Activity 10 can start when activity 9 is over.
8	4	Activity 11 can start when activity 8 is over.
9	4	Activity 12 can start when activity 11 is over.
10	4	Activity 13 can start when half of activity 10 is over.
11	3	Activity 14 is the last activity.
12	2	
13	3	
14	1	

**OR**

Answer the following for the network diagram displayed. Numbers indicate time in weeks:

1. Slack.
2. Earliest expected time and latest allowable occurrence time.
3. Critical path

