U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

May / June 2025 Semester End Main Examinations

Programme: B.E. **Semester: VIII**

Branch: Civil Engineering **Duration: 3 hrs.**

Course Code: 21CV8HSCEP **Max Marks: 100**

Course: Construction Project Management, Economics and Professional Ethics

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.
3. Use of discrete compounding interest factor tables is permitted.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

			UNIT - I	*CO*	*PO*	Marks
1	a)		Elucidate on the significance and functions of project management and its organization.	*CO1*	*PO1* *1*	**10**
	b)		Discuss the concept and advantages of work-break down structure considering an example of a construction project.	*CO1*	*PO11*	**10**
			OR			
2	a)		Explain the elements of a network diagram and mention any three common errors in them.	*CO1*	*PO11*	**10**
	b)		For the details given below in the table, construct a network diagram.	*CO1*	*PO11*	**10**
			UNIT - II			
3	a)		Discuss the following terms – (i). Earliest start time (ii). Earliest finish time (iii). Latest start time (iv). Latest finish time (v). Floats	*CO1*	*PO11*	**05**
	b)		Compare CPM and PERT for its merits and demerits.	*CO1*	*PO11*	**05**

Activity	Predecessor	Activity	Predecessor
A	-	I	G
B	A	J	G
C	A	K	F
D	B	L	H,I
E	A	M	E,J
F	B		
G	C,D		
H	F		

		c)	A building project consists of 10 activities. Draw the network diagram. Determine the critical path of the network and compute the total floats. **Activity** / **Duration in days** 1—2 : 5 2—3 : 2 2—4 : 6 3—5 : 4 3—6 : 4 4—5 : 2 4—7 : 3 5—8 : 7 6—8 : 8 7—8 : 2	*CO1*	*PO11*	**10**
			OR			
	4	a)	Discuss the terms of 'three time estimates' in PERT analysis.	*CO1*	*PO11*	**06**
		b)	The construction project with the three time estimates of each event is given in table below. Construct the network diagram. Determine: a) Critical path and its standard deviation b) Probability of completion of project in 35 weeks. c). Projected time of completion of the project with 95% probability. **Event** / **Time estimates in weeks** (t_o, t_m, t_p) 1-2 : 3, 6, 9 1-6 : 2, 5, 8 2-3 : 6, 12, 18 2-4 : 4, 5, 6 3-5 : 8, 11, 14 4-5 : 3, 7, 11 6-7 : 3, 9, 15 5-8 : 2, 4, 6 7-8 : 8, 16, 18	*CO1*	*PO11*	**14**
			UNIT - III			
	5	a)	Elaborate on the significance and objectives of "time-cost trade off' analysis. With a suitable sketch, bring out the difference between direct cost, indirect cost and total cost of a project.	*CO2*	*PO11*	**10**
		b)	Explain the method and stages of cost controlling in construction.	*CO2*	*PO11*	**10**

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<tr><td></td><td></td><td></td><td>OR</td><td></td><td></td><td></td></tr>
<tr><td></td><td>6</td><td>a)</td><td>Discuss the features of Building Information Modelling. Illustrate on any 5 features of BIM software which makes it an effective tool for construction project management.</td><td>CO2</td><td>PO11</td><td>10</td></tr>
<tr><td></td><td></td><td>b)</td><td>Elaborate on the importance of material management and resource planning in a construction project</td><td>CO2</td><td>PO11</td><td>10</td></tr>
<tr><td></td><td></td><td></td><td>UNIT - IV</td><td></td><td></td><td></td></tr>
<tr><td></td><td>7</td><td>a)</td><td>Explain the objectives and significance of –
(i). Time value of money with an example
(ii). Working capital management</td><td>CO2</td><td>PO11</td><td>10</td></tr>
<tr><td></td><td></td><td>b)</td><td>A company has to replace a present facility after 15 years at an outlay of Rs. 6, 00,000/-. It plans to deposit an equal amount at the end of every year for the next 15 years at an interest rate of 15% compounded annually. Find the equivalent amount that must be deposited at the end of every year for the next 15 years.</td><td>CO2</td><td>PO11</td><td>10</td></tr>
<tr><td></td><td></td><td></td><td>OR</td><td></td><td></td><td></td></tr>
<tr><td></td><td>8</td><td>a)</td><td>Explain the concept of capital budgeting, its process and methods available for evaluation.</td><td>CO2</td><td>PO11</td><td>08</td></tr>
<tr><td></td><td></td><td>b)</td><td>An automobile manufacturing company is planning to expand its production operation. It has identified three different technologies for meeting the goal. The initial outlay and annual revenue with respect to each of the technologies are given in the table below. Suggest the best technology to be implemented based on Present worth method of comparison assuming 20% interest rate, compounded annually.
<table>
<tr><th rowspan="2">Technology</th><th colspan="3">Construction company estimates</th></tr>
<tr><th>Initial Outlay (Rs)</th><th>Service life (yrs)</th><th>Annual revenue (Rs)</th></tr>
<tr><td>Tech.1</td><td>12,00,000</td><td>10</td><td>4,00,000</td></tr>
<tr><td>Tech.2</td><td>20,00,000</td><td>10</td><td>6,00,000</td></tr>
<tr><td>Tech.3</td><td>18,00,000</td><td>10</td><td>5,00,000</td></tr>
</table></td><td>CO2</td><td>PO11</td><td>12</td></tr>
<tr><td></td><td></td><td></td><td>UNIT - V</td><td></td><td></td><td></td></tr>
<tr><td></td><td>9</td><td>a)</td><td>Discuss any five principles of professional ethics essential for a Civil Engineer.</td><td>CO2</td><td>PO11</td><td>10</td></tr>
<tr><td></td><td></td><td>b)</td><td>Discuss on how important professional ethics to today’s world considering a case study.</td><td>CO2</td><td>PO11</td><td>10</td></tr>
<tr><td></td><td></td><td></td><td>OR</td><td></td><td></td><td></td></tr>
<tr><td></td><td>10</td><td>a)</td><td>Demonstrate any five forms of unethical practices in construction Industry.</td><td>CO2</td><td>PO11</td><td>10</td></tr>
<tr><td></td><td></td><td>b)</td><td>With two examples, discuss the cases of breach of professional responsibility in construction industry.</td><td>CO2</td><td>PO11</td><td>10</td></tr>
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