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Total number of printed pages: 2

UG/8th/UCE801

2023

CONSTRUCTION ENGINEERING AND PROJECT MANAGEMENT

Full Marks: 100

Time: Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1.	a)	Discuss in brief the role of management in project execution	10
	b)	Explain in brief the difference between PERT and CPM networks. Explain the circumstances under which one is preferred over the other.	10
2.	a)	What do you understand by a 'dummy'? What are its uses?	10
	a)	Define 'head event', 'tail event', 'dual role event', 'successor event' and 'predecessor event'.	5x2 = 10
3.	a)	Differentiate between 'activity oriented diagram' and event oriented diagram'.	10
	b)	Assume that a statue is to be erected in a village square on a stone platform which is to be built on a cement concrete foundation. The statute is to be prepared at another place, moved and erected. The various operations of the entire project are given below. These operations are not in logical sequence. A. Make statue B. Shift statue C. Erect statue D. Lay foundation. E. Construct platform Represent the above project by (a) activity oriented network and (b) event oriented network.	5+5=10

<table>
<tr><td>4.</td><td>a)</td><td>Define ‘normal project time’, normal cost’, ‘cash time’ and ‘crash cost’. Draw a typical cost duration curve and show on it optimum duration and minimum project cost.</td><td>10</td></tr>
<tr><td></td><td>b)</td><td>What is Resources Allocation problem? What are the methods of solving the problem?</td><td>4+6=10</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>5.</td><td>a)</td><td>Define Arbitration in a project management. Explain Indian Arbitration Act 1940 and its essential provisions.</td><td>4+6=10</td></tr>
<tr><td></td><td>b)</td><td>Explain the process of Guniting and Shotcreting in construction work.</td><td>5+5=10</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>6.</td><td>a)</td><td>A construction project consists of 12 activities. The predecessor relationships are identified by their node numbers as indicated below:
<table>
<tr><th>Activity</th><th>Identification</th><th>Activity</th><th>Identification</th></tr>
<tr><td>A</td><td>(1, 2)</td><td>G</td><td>(4, 6)</td></tr>
<tr><td>B</td><td>(2, 4)</td><td>H</td><td>(5, 6)</td></tr>
<tr><td>C</td><td>(2, 3)</td><td>I</td><td>(5, 7)</td></tr>
<tr><td>D</td><td>(2, 7)</td><td>J</td><td>(7, 8)</td></tr>
<tr><td>E</td><td>(3, 4)</td><td>K</td><td>(6, 8)</td></tr>
<tr><td>F</td><td>(3, 5)</td><td>L</td><td>(8, 9)</td></tr>
</table></td><td>10</td></tr>
<tr><td></td><td>b)</td><td>PERT calculations yield a project length of 50 weeks, with a variance of 16. Within how many weeks would you expect the project to be completed with probability of (a) 75% and (b) 40%? Given Z values for 75% and 40% probability are 0.69 and -0.25 respectively.</td><td>5+5=10</td></tr>
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