JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2025

BBA V Semester

COURSE CODE (CREDITS): 24BB1HS512 (4) MAX. MARKS: 35

COURSE NAME: QUANTITATIVE TECHNIQUES FOR MANAGEMENT

COURSE INSTRUCTORS: ASA MAX. TIME: 2 Hours

Note: (a) All questions are compulsory.
(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems
(c) Use of Calculator is allowed.

<table>
<tr><th>Q.No</th><th>Question</th><th>CO</th><th>Marks</th></tr>
<tr><td>Q1</td><td>The packaging department of Yashashwa Foods Ltd. uses 4,800 kg of special packaging material every year to pack its food products. The cost of placing one order is Rs 40, and the inventory carrying cost is 20% of the cost of material. The price of material is Rs 12 per kg.
The purchase manager wants to minimize the total inventory cost and asks you to recommend the most economical order size (EOQ).
a) Calculate the Economic Order Quantity (EOQ) for the packaging material.
b) How many orders should the company place in a year?</td><td>5</td><td>3+2 = 5</td></tr>
<tr><td>Q2</td><td>Harshita Enterprises is planning to launch a new product. The project involves six activities (A–F). The following table gives the precedence relationships and the time estimates:
<table>
<tr><th>Activity</th><th>Predecessor</th><th>Optimistic Time (o)</th><th>Most Likely Time (m)</th><th>Pessimistic Time (p)</th></tr>
<tr><td>A</td><td>–</td><td>2</td><td>4</td><td>6</td></tr>
<tr><td>B</td><td>A</td><td>3</td><td>5</td><td>11</td></tr>
<tr><td>C</td><td>A</td><td>1</td><td>2</td><td>3</td></tr>
<tr><td>D</td><td>B</td><td>2</td><td>3</td><td>8</td></tr>
<tr><td>E</td><td>B, C</td><td>4</td><td>6</td><td>10</td></tr>
<tr><td>F</td><td>D, E</td><td>3</td><td>4</td><td>5</td></tr>
</table>
a) Calculate the Expected Time (Te) for each activity.
b) Draw the PERT network diagram using the given activity relationships.
c) Identify the critical path and project duration.</td><td>5</td><td>2+3+3 = 8</td></tr>
<tr><td>Q3</td><td>Rishi Global is planning to launch a new product. They must choose one of the three strategies for launching a new product. The payoff (profit in ₹) under three possible market conditions is given below:</td><td>4</td><td>1.5x4 = 6</td></tr>
</table>

		Strategies	**Boom (M_1)**	**Stable (M_2)**	**Recession (M_3)**	
		S_1	6,00,000	3,50,000	1,00,000	
		S_2	4,50,000	5,00,000	50,000	
		S_3	3,00,000	2,80,000	2,20,000	
	Which strategy should they select based on: **a)** Maximin Criterion; **b)** Maximax Criterion; **c)** Minimax Regret Criterion; **d)** Laplace Criterion					
Q4	Mr. Naman must travel from City P to City Q for an important client meeting. If he reaches on time, he will secure a business deal that will earn him a profit of ₹12,000; however, if he is late, he will lose the deal completely. To make the trip, Mr. Naman has three possible travel options. He may take a public bus that costs ₹30 and gives him an 85% chance of reaching on time. Alternatively, he can use an express shuttle van that costs ₹250 and offers a 95% chance of timely arrival. A third option is a ride-share taxi, which costs ₹380 but provides a 98% probability of arriving before the meeting begins. Based on the Expected Monetary Value (EMV) criterion, which mode of transport should Mr. Naman choose?					**4**	**6**
Q5	Explain what a Gantt Chart is and discuss its role in project planning and scheduling. How does it help managers monitor progress, allocate resources, and identify delays in a project? Illustrate your answer with a suitable example.					**3**	**4**
Q6	Short Answer (max 50 words) **a)** Project Time-Cost Trade-Off **b)** CPM **c)** Baye's Theorem **d)** Decoupling Inventory					**1**	**1.5x4 = 6**