

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

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations

Programme: B.E.

Semester: V

Branch: Aerospace Engineering

Duration: 3 hrs.

Course Code: 23AS5AEPMN

Max Marks: 100

Course: Project Management

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

				<table border="1"> <tr><td>4-5</td><td>5</td><td>5</td><td>17</td></tr> <tr><td>6-7</td><td>5</td><td>8</td><td>29</td></tr> <tr><td>5-8</td><td>3</td><td>3</td><td>9</td></tr> <tr><td>7-8</td><td>8</td><td>17</td><td>32</td></tr> </table>	4-5	5	5	17	6-7	5	8	29	5-8	3	3	9	7-8	8	17	32																	
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				i. Construct the project network. ii. Find the expected duration and variance of each activity. iii. Compute the earliest and latest occurrence for each event. iv. Calculate the expected project length. v. Calculate the variance and standard deviations of project length. vi. Find the probability of completing the project in the range of 34-38 weeks.																																	
				UNIT - III																																	
5	a)			List the priority sequencing types and various evaluation criteria.	CO2	PO1	10																														
	b)			The following two jobs must be processed on the 5 machines. Find the total minimum elapsed time to complete both jobs. Also, find the idle time for each machine.	CO3	PO9	10																														
				<table border="1"> <tr><th>Job 1</th><th>Sequence</th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th></tr> <tr><td></td><td>Machine Time</td><td>3</td><td>4</td><td>2</td><td>6</td><td>2</td></tr> <tr><th>Job 2</th><th>Sequence</th><th>B</th><th>C</th><th>A</th><th>D</th><th>E</th></tr> <tr><td></td><td>Machine Time</td><td>5</td><td>4</td><td>3</td><td>2</td><td>6</td></tr> </table>	Job 1	Sequence	A	B	C	D	E		Machine Time	3	4	2	6	2	Job 2	Sequence	B	C	A	D	E		Machine Time	5	4	3	2	6					
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6	a)			Briefly explain the steps of Johnson's Algorithm for sequencing problems with n jobs through three machines.	CO2	PO1	10																														
	b)			The following four jobs will be processed on each of the 5 machines. Find the total minimum elapsed time if no passing jobs is permitted. Also, find the idle time for each machine. Develop the Gantt Chart for these machines.	CO3	PO9	10																														
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				UNIT - IV																																	
7	a)			Explain briefly by classifying the various types of budgets.	CO4	PO7	10																														
	b)			The expenses budgeted for the production of 1,000 units in a factory are furnished below:	CO4	PO9	10																														
				<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 50%;">Particulars</th> <th style="text-align: right; width: 50%;">Per Unit Rs.</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">Material Cost</td> <td style="text-align: right;">700</td> </tr> <tr> <td style="text-align: left;">Labour Cost</td> <td style="text-align: right;">250</td> </tr> <tr> <td style="text-align: left;">Variable overheads</td> <td style="text-align: right;">200</td> </tr> <tr> <td style="text-align: left;">Selling expenses (20% fixed)</td> <td style="text-align: right;">130</td> </tr> <tr> <td style="text-align: left;">Administrative expenses (Rs. 2,00,000)</td> <td style="text-align: right;">200</td> </tr> <tr> <td></td> <td style="text-align: right; font-weight: bold;">Total Cost 1,480</td> </tr> </tbody> </table> <p>Prepare a budget for production of 600 units and 800 units assuming administrative expenses are rigid for all levels of production.</p>	Particulars	Per Unit Rs.	Material Cost	700	Labour Cost	250	Variable overheads	200	Selling expenses (20% fixed)	130	Administrative expenses (Rs. 2,00,000)	200		Total Cost 1,480																			
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	8	a)	Distinguish the fixed and flexible budget and explain their procedures.	<i>CO5</i>	<i>PO7</i>	10																																			
		b)	Prepare a cash Budget of Drones India Pvt. Ltd. for April, May and June 2023:			10																																			
			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Months</th> <th style="text-align: center;">Sales(Rs.)</th> <th style="text-align: center;">Purchases(Rs.)</th> <th style="text-align: center;">Wages(Rs.)</th> <th style="text-align: center;">Expenses(Rs.)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Jan.(Actual)</td> <td style="text-align: center;">80,000</td> <td style="text-align: center;">45,000</td> <td style="text-align: center;">20,000</td> <td style="text-align: center;">5,000</td> </tr> <tr> <td style="text-align: center;">Feb.(Actual)</td> <td style="text-align: center;">80,000</td> <td style="text-align: center;">40,000</td> <td style="text-align: center;">18,000</td> <td style="text-align: center;">6,000</td> </tr> <tr> <td style="text-align: center;">March (Actual)</td> <td style="text-align: center;">75,000</td> <td style="text-align: center;">42,000</td> <td style="text-align: center;">22,000</td> <td style="text-align: center;">6,000</td> </tr> <tr> <td style="text-align: center;">April (Budget)</td> <td style="text-align: center;">90,000</td> <td style="text-align: center;">50,000</td> <td style="text-align: center;">24,000</td> <td style="text-align: center;">7,000</td> </tr> <tr> <td style="text-align: center;">May(Budget)</td> <td style="text-align: center;">85,000</td> <td style="text-align: center;">45,000</td> <td style="text-align: center;">20,000</td> <td style="text-align: center;">6,000</td> </tr> <tr> <td style="text-align: center;">June(Budget)</td> <td style="text-align: center;">80,000</td> <td style="text-align: center;">35,000</td> <td style="text-align: center;">18,000</td> <td style="text-align: center;">5,000</td> </tr> </tbody> </table> <p>Additional Information:</p> <p>(i) 10% of the purchases and 20% of sales are for cash.</p> <p>(ii) The average collection period of the company is $\frac{1}{2}$ month and the credit purchases are paid regularly after one month.</p> <p>(iii) Wages are paid half monthly and the rent of Rs. 500 included in expenses is paid monthly and other expenses are paid after one month's lag.</p> <p>(iv) Cash balance on April 1, 2023 may be assumed to be Rs.15,000</p>	Months	Sales(Rs.)	Purchases(Rs.)	Wages(Rs.)	Expenses(Rs.)	Jan.(Actual)	80,000	45,000	20,000	5,000	Feb.(Actual)	80,000	40,000	18,000	6,000	March (Actual)	75,000	42,000	22,000	6,000	April (Budget)	90,000	50,000	24,000	7,000	May(Budget)	85,000	45,000	20,000	6,000	June(Budget)	80,000	35,000	18,000	5,000	<i>CO5</i>	<i>PO10</i>	
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	9	a)	What is Risk Breakdown Structure analysis (RBS). Perform a risk breakdown structure for a project.	<i>CO5</i>	<i>PO7</i>	6																																			
		b)	Explain the risk probability/impact matrix.	<i>CO5</i>	<i>PO10</i>	7																																			
		c)	What is supply chain? Explain its the merits and demerits and types of supply chains.	<i>CO5</i>	<i>PO7</i>	7																																			
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	10	a)	Discuss the qualitative techniques used for risk analysis.	<i>CO5</i>	<i>PO7</i>	6																																			
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