



# SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY  
(DEEMED TO BE UNIVERSITY)

Accredited "A" Grade by NAAC | 12B Status by UGC | Approved by AICTE

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## CONTINUOUS ASSESSMENT TEST - I

<b>Program</b> : B.E. Mech/Mechatronics/Auto/Aero	<b>Max</b> : 30 Marks
<b>Course</b> : Resource Management Techniques	<b>Time</b> : 1.00PM
<b>Course code</b> : SPR1307	<b>Sem</b> : VI
<b>Batch</b> : 2018-2022	<b>Date</b> : 25.03.2021

**Part-A** **Answer ALL the questions** (5×2=10)

Q.No	Questions	CO (L)
1.	Define Operation Research	1(1)
2.	State any four application of operation research.	1(2)
3.	Distinguish between non – degenerate and degenerate solution.	2(2)
4.	Describe about slack and artificial variable	1(2)
5.	What is the use of MODI method?	2(1)

**Part-B** **Answer ALL the questions** (2×10=20)

Q.No	Questions	CO (L)
6.	Solve the LPP by using Graphical Method  $\text{Max } Z = 3X_1 + 4X_2$  Subject to $5X_1 + 4X_2 \leq 200$ $3X_1 + 5X_2 \leq 150$ $5X_1 + 4X_2 \geq 100$ $8X_1 + 4X_2 \geq 80$ and $X_1, X_2 \geq 0$	1(4)
<b>(OR)</b>		
7.	Solve the LPP by using Simplex Method  $\text{Max } Z = 4X_1 + 10X_2$ Subject to $2X_1 + X_2 \leq 50$ $2X_1 + 5X_2 \leq 100$ $2X_1 + 3X_2 \leq 90$ and $X_1, X_2 \geq 0$	1(4)

8.	<p>Solve the transportation problem by using Vogel`s Approximation Method</p> <table><tr><td></td><td>11</td><td>13</td><td>17</td><td>14</td><td>Supply</td></tr><tr><td></td><td>16</td><td>18</td><td>14</td><td>10</td><td>250</td></tr><tr><td></td><td>21</td><td>24</td><td>13</td><td>10</td><td>300</td></tr><tr><td>Demand</td><td>200</td><td>225</td><td>275</td><td>250</td><td>400</td></tr></table> <p>To find Initial basic Feasible Solution (IBFS)</p>		11	13	17	14	Supply		16	18	14	10	250		21	24	13	10	300	Demand	200	225	275	250	400	2(4)
	11	13	17	14	Supply																					
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(OR)																										
9.	<p>Solve the transportation problem by using a) North West Corner b) Least Cost Method d) Vogel`s Approximation Method.</p> <table><tr><td></td><td>1</td><td>2</td><td>6</td><td>Supply</td></tr><tr><td></td><td>0</td><td>4</td><td>2</td><td>7</td></tr><tr><td></td><td>3</td><td>1</td><td>5</td><td>12</td></tr><tr><td>Demand</td><td>10</td><td>10</td><td>10</td><td>11</td></tr></table> <p>To find Initial Basic feasible Solution</p>		1	2	6	Supply		0	4	2	7		3	1	5	12	Demand	10	10	10	11	2(4)				
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