MODEL QUESTION PAPER

Programme name :Mechanical Engineering

Course code: **Course name: 4024 Industrial Engineering**

Time : 3 Hours *Max.Marks : 75*

1. **Answer all the following questions** **(9 x 1 = 9 Marks)**

1	_____ chart is used for scheduling	M1.01	R
2	The plant layout where product remains at one place is known as _____	M1.03	R
3	SIMO chart is used for _____	M2.03	R
4	Write the name of the process chart which gives bird's eye view of overall operations	M2.03	R
5	Write the equation to find out mean from frequency table	M3.02	R
6	Write an example for variable data	M3.03	R
7	Write an example for attribute data	M3.03	R
8	Write an example for indirect expense	M4.03	R
9	Write an example for production overhead	M4.03	R

2. **Answer any Eight questions from the following** **8 x 3= 24 Marks)**

1	List the techniques for sales forecasting	M1.01	R
2	Explain man machine chart	M2.03	U
3	Calculate standard time for an observed time of 4 min, performance rating factor is 110% and allowances are 20% of normal time.	M2.04	A
4	Write down time study procedure	M2.02	R
5	Explain any three process chart symbols	M2.03	U
6	Calculate standard deviation of following data 10, 11, 9, 10.5, 12, 11	M3.02	A
7	Explain prime cost	M4.03	U
8	Differentiate estimating and costing	M4.02, M4.03	U
9	Explain direct cost	M4.03	U
10	Explain indirect cost	M4.03	U

3. **Answer all questions from the following (6x 7 = 42 Marks)**

1	Explain different types of orders in dispatching	M1.01	U
	OR		
2	Take an example of nearby industry and explain the type of production employed there	M1.03	U
3	Explain the procedure to conduct method study	M2.02	U
	OR		

<table>
<tr><td>4</td><td>Illustrate string diagram with explanation</td><td>M2.03</td><td>U</td></tr>
<tr><td>5</td><td>The following are the inspection results of 20 lots of magnets, each lot being of 750 magnets. Numbers of defective magnets in each lot are 48, 83, 70, 85, 45, 56, 48, 67, 37.Calculate the average fraction defective and three sigma control limits for P chart and state whether the process is in control or not</td><td>M3.03</td><td>A</td></tr>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td>6</td><td>Draw X bar and R chart for the following data and state the control of the process ($A_2 = 0.58$)
<table>
<tr><td>Sample no.</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr>
<tr><td>Sample mean</td><td>7</td><td>7.5</td><td>8</td><td>10</td><td>9.5</td><td>11</td><td>11.5</td><td>4</td><td>3.5</td><td>4</td></tr>
</table></td><td>M3.03</td><td>A</td></tr>
<tr><td>7</td><td>A machine costs 4 lakh rupee, its useful life is 10 years after which its scrap value will be 1 lakh rupees. Calculate the depreciation fund accrued at the end of 3rd year using straightline method.</td><td>M4.04</td><td>A</td></tr>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td>8</td><td>Describe the reducing balance method with necessary equations</td><td>M4.04</td><td>R</td></tr>
<tr><td>9</td><td>Explain fixed position layout and its features with a suitable example</td><td>M1.03</td><td>U</td></tr>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td>10</td><td>Explain process layout and its features with a suitable example</td><td>M1.03</td><td>U</td></tr>
<tr><td>11</td><td>Find the mean and standard deviation of the following data
<table>
<tr><td>Time</td><td>Frequency</td></tr>
<tr><td>10</td><td>2</td></tr>
<tr><td>11</td><td>4</td></tr>
<tr><td>12</td><td>3</td></tr>
<tr><td>13</td><td>5</td></tr>
<tr><td>15</td><td>5</td></tr>
<tr><td>16</td><td>3</td></tr>
<tr><td>17</td><td>2</td></tr>
</table></td><td>M3.02</td><td>A</td></tr>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td>12</td><td>Describe the procedure of making C chart</td><td>M3.02</td><td>R</td></tr>
</table>

Blue Print

Mark Distribution

Module	Hours/Module (hi)	Marks/Module (hi/∑Hi) * 123 (±5%)	Type of Questions							
			Part A		Part B		Part C		Total	
			No. of questions	Marks	No. of questions	Marks	No. of questions	Marks	No. of questions	Marks
1	12	33	2	2	1	6	4	28	8	36
2	10	27	2	2	4	6	2	14	6	22
3	12	33	3	3	4	12	4	28	11	43
4	11	30	2	2	2	6	2	14	6	22
Total	45	123	9	9	10	30	12	84	31	123

Cognitive Level Distribution

Cognitive Level	Marks	% of Marks
Remembering	29	24
Understanding	60	49
Applying	34	27
Total	123	100