UPES
UNIVERSITY OF TOMORROW

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2022

Course: B.Tech Mechanical engineering   Semester: V
Program: Industrial Engineering   Time : 03 hrs.
Course Code: MEPD3004   Max. Marks: 100

Instructions:

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
	Statement of question		
Q 1	Differentiate between the Dispatching and Expediting function of PPC.	4	CO1
Q 2	Explain how material testing is done in an industry and why testing is important?	4	CO1
Q 3	Discuss some labour welfare measures undertaken by organization in recent days	4	CO2
Q 4	Explain standard time calculation in a job	4	CO3
Q 5	A furniture manufacturing company has provided the following data. Compare the labour, raw materials and supplies and total productivity of 1996 and 1997. Output: Sales value of production in dollar ($) 22,000 (in 1996) and 35,000 (in 1997) 1996 1997 Inputs: Labour 10,000 15,000 Raw materials and Supplies 8,000 12,500 Capital equipment depreciation 700 1,200 Other 2,200 4,800	4	CO3

SECTION B
(4Qx10M= 40 Marks)

Q	Statement of question		
Q 6	Differentiate between 100% inspection and sampling with suitable examples	10	CO2
Q 7	What are the major functions of Production planning and control?	10	CO1
Q 8	Explain multiple activity chart with suitable example .	10	CO3
Q 9	Layout different departments within a facility based on importance of relationships between departments based on manual CORELAP algorithm.	10	CO3

1. Receiving
2. Shipping
3. Raw Materials Storage
4. Finished Goods Storage
5. Manufacturing
6. Work-In-Process Storage
7. Assembly
8. Purchasing & Sales
9. Product Engineering (Testing)

Closeness Values	
V (A)	500
V (E)	200
V (I)	50
V (O)	2
V (U)	0
V (X)	-100

SECTION-C
(2Qx20M=40 Marks)

Q	Statement of question		
Q10	a) Describe the EOQ problem with more than one price break. b) A manufacturer has to supply 10,000 units of product annually. The unit cost is Rs. 2 and it costs Rs.36 to place an order. The inventory carrying cost is estimated at 9% of average inventory investment. Determine 1. EOQ 2.Optimum number of orders to be placed per annum. 3.Minimum total cost of inventory OR c) A manufacturing concern requires 2000 units of a material per year. The ordering costs are Rs. 10 per order, while carrying costs are Rs. 0.16 per year per unit of average inventory. The purchase price is Rs. 1 per unit. Find the economic order quantity, and the total inventory cost. If a discount of 5 percent is available for orders of 1000 units. Also, if he purchases a single lot of 2000 units, he has to pay Rs. 0.93 per unit. What purchase quantity would you recommend?	20	CO4
Q11	The number of scratch marks on a particular piece of furniture is recorded. The data for 20 samples are given below:	20	CO2/CO4

sample number	1	2	3	4	5	6	7	8	9	10
scratch mark	6	3	14	7	2	5	12	4	7	3
sample number	11	12	13	14	15	16	17	18	19	20
scratch mark	2	7	6	8	4	10	5	4	13	9

Draw the appropriate control chart and write the comments about the state of the process when
- i) The management sets a goal of 5 scratch marks on an average per piece.
- ii) The management does not set the average number of marks per piece.

b) The following data gives readings of 10 samples of size 6 each in the production of a certain product. Draw control chart for mean and range with its control limits

Sample	1	2	3	4	5	6	7	8	9	10
Mean	383	508	505	582	557	337	514	614	707	753
Range	95	128	100	91	68	65	148	28	37	80