

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER VIII-EXAMINATION- SUMMER 2020**

Subject Code: 2180207

Date: 27/10/2020

Subject Name: APPLIED INDUSTRIAL ENGINEERING IN AUTOMOBILE

Time: 02.30 pm to 05.00 pm

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain concept of Supply Chain Management and Logistics. **03**
 (b) What is dispatching? Explain the procedure of dispatching. **04**
 (c) What is line balancing? Discuss assembly line balancing in detail with taking suitable example. **07**

- Q.2** (a) Explain SWOT Analysis. **03**
 (b) State the objectives of work measurement. Name the work measurement techniques. **04**
 (c) Explain Travel chart and Two Handed process chart with suitable example. **07**

OR

- (c) What do you mean by process planning? Explain step by step procedure of process planning. **07**
- Q.3** (a) Define Reliability and explain failure rate analysis. **03**
 (b) Discuss String diagram and its uses. **04**
 (c) Explain the concept of Six Sigma. **07**

OR

- Q.3** (a) Define the following terms of sampling plans: (i) AQL (ii) RQL (iii) IQL **03**
 (b) What is average outgoing quality (AOQ)? Explain with suitable example. **04**
 (c) Explain the concept of Six Sigma. **07**

- Q.4** (a) Define the following terms: (i) MTTF (ii) MTBF (iii) MTTR. **03**
 (b) Discuss Multiple activity Chart. **04**
 (c) Forecast the demand for the following series by exponential smoothing method. Assume $\alpha = 0.3$ **07**

Period	1	2	3	4	5	6	7	8	9	10
Actual Demand	10	12	8	11	9	10	15	14	16	15

OR

- Q.4** (a) Explain the concept of 'Poka Yoke' for mistake proofing. **03**
 (b) Briefly explain concept of Quality Circle. **04**
 (c) A small engineering project consists of six activities. The three time estimates in number of days for each activity are given below. **07**

Activity	T_o	T_m	T_p
1-2	2	5	8
2-3	1	1	1
3-5	0	6	18
5-6	7	7	7
1-4	3	3	3
4-5	2	8	14

- (a) Calculate the values of expected time, Standard deviation and

Variance for each activity.

(b) Draw the network diagram and mark T_e on each activity.

(c) Identify the critical path and mark on the network diagram by using float value for each activity.

- Q.5** (a) Explain 'Delphi method' of sales forecasting. **03**
 (b) Differentiate between control charts for variables and attributes. **04**
 (c) Find out the basic feasible Solution and its cost by (i) Northwest corner method and (ii) least cost method for the following transportation table which shows cost in rupees for transporting 1 unit from factories to ware houses. **07**

		Ware Houses				
Factories		A	B	C	D	Supply
	X	2	3	11	7	6
	Y	1	0	6	1	1
	Z	5	8	15	9	10
Demand		7	5	3	2	17

OR

- Q.5** (a) Define the following terms : (i) Dummy Activity (ii) Float (iii) Event **03**
 (b) Differentiate between CPM and PERT. **04**
 (c) The scooter manufacturing company has manufacturing plants at A, B and C. It has to supply scooters to markets P and Q. Manufacturing capacities of Plant A, B and C are 1000, 1500 and 1200 scooters monthly. Monthly demand at P and Q is 2300 and 1400. The transportation cost is shown in the matrix. Find out the basic feasible solution by using VAM. **07**

		Markets		
Manufacturing Plants		P	Q	Supply
	A	2000	5400	1000
	B	2500	2700	1500
	C	3000	1800	1200
Demand		2300	1400	3700
