GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VI(NEW) EXAMINATION – WINTER 2022

Subject Code:3161907 **Date:15-12-2022**

Subject Name:Basics of Industrial Engineering

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.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	What are the factors deciding the location of a Plant?	**03**
	(b)	Explain the reasons for increase and decrease in productivity.	**04**
	(c)	Explain the types of Production systems with their typical characteristics and relate them to the types of Plant layouts.	**07**
Q.2	**(a)**	Define Process planning in detail.	**03**
	(b)	Explain the functions of Production Planning and Control.	**04**
	(c)	Calculate the sales forecast for the month of July 2020 if the sales for the last 8 months is shown as below:	**07**

Month	Sales in thousands
Nov 2019	200
Dec 2019	150
Jan 2020	182
Feb 2020	190
March 2020	152
April 2020	135
May 2020	149

OR

	(c)	Define line balancing. Explain what is precedence diagram with a simple example.	**07**
Q.3	**(a)**	What are the symbols used in the Flow Process chart?	**03**
	(b)	Explain the objectives of Method study.	**04**
	(c)	Discuss the different methods of Job Evaluation.	**07**

OR

Q.3	**(a)**	Define Merit rating	**03**
	(b)	What is SIMO chart?	**04**
	(c)	Explain the different Incentive plans for workers.	**07**
Q.4	**(a)**	Discuss Factory's Act 1948	**03**
	(b)	What are Quality Circles?	**04**
	(c)	Define the terms Producer's risk and Consumer's risk with respect to O.C curve.	**07**

OR

Q.4	**(a)**	Explain the concept of Entrepreneurship.	**03**

(b) Why is project report necessary in Entrepreneurship? **04**

(c) Why is inspection necessary and what are the types of inspection? **07**

Q.5 **(a)** Discuss Total Quality Management. **03**

(b) What are the ways of managing waste in industries. **04**

(c) Draw the X bar for the following data and tell whether process is under control. Value of A2=0.577 **07**

Table 1. Process Time Series Data

Subgroup	Sample One	Sample Two	Sample Three	Sample Four	Sample Five
1	102.7	102.2	102.7	103.3	103.6
2	108.2	108.8	106.7	106.6	109.1
3	101.9	103.0	100.6	101.4	101.3
4	103.9	105.5	104.3	104.5	104.5
5	97.2	99.0	96.5	94.9	96.5
6	94.4	93.0	93.0	95.2	93.6
7	104.7	103.6	103.7	104.7	104.5
8	102.5	102.7	101.2	100.6	103.1
9	101.9	103.1	101.0	101.2	101.4
10	95.0	95.3	95.3	94.4	94.2

OR

Q.5 **(a)** Explain Waste management in Industries. **03**

(b) Discuss the principle of Six Sigma. **04**

(c) What is Sampling and what are the different types of sampling plans. **07**

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