

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2020

**Subject Code:2171501**

**Date:19/01/2021**

**Subject Name:Operations Planning & Control**

**Time:10:30 AM TO 12:30 PM**

**Total Marks: 56**

**Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
<b>Q.1</b>	(a) Define Operations Planning & Control.	<b>03</b>
	(b) Discuss the role of PPC executive in materials control function in Job order production industry.	<b>04</b>
	(c) Explain the role of OPC in improving overall manufacturing performance of the organization.	<b>07</b>
<b>Q.2</b>	(a) What is dispatching?	<b>03</b>
	(b) Explain in brief : Computer Integrated Manufacturing (CIM).	<b>04</b>
	(c) Explain crucial functions of PPC and the concerned departments.	<b>07</b>
<b>Q.3</b>	(a) What is sales forecasting?	<b>03</b>
	(b) Explain 'Regression analysis' method of sales forecasting.	<b>04</b>
	(c) The sales pattern of an automobile gear mfg. company is as follows :	<b>07</b>

Year	2012	2013	2014	2015	2016	2017	2018	2019
Sales (Rs.Crores)	34.7	35.2	35.8	36.8	36.2	37.3	38.5	40.1

Compute the 3 yearly moving trend and find out the sales forecast for the year 2020.

<b>Q.4</b>	(a) What is process planning?	<b>03</b>
	(b) Explain process planning procedure.	<b>04</b>
	(c) An engineering company uses a special type of pin at an approximately constant rate of 7000 units per year. The pins are manufactured at the company's own plant. Each pin costs the company Rs. 90. The setup cost per production run is Rs. 2500. The inventory carrying charges are estimated at 22% of the average inventory investment. What quantity of pins should be manufactured in each production run for minimum cost? Also find out the frequency of production runs to be made.	<b>07</b>
<b>Q.5</b>	(a) What is scheduling?	<b>03</b>
	(b) Differentiate between Gantt chart and Machine load chart.	<b>04</b>
	(c) Explain scope of scheduling with example.	<b>07</b>
<b>Q.6</b>	(a) What is job sequencing?	<b>03</b>
	(b) State assumptions underlying Johnson's algorithm for sequencing.	<b>04</b>
	(c) Use Johnson's rule to find out the best sequence and find total idle time for following data :	<b>07</b>

Job	1	2	3	4	5	6
Lathe	4	7	5	10	12	8
Shaping	5	8	4	9	7	6

- Q.7** (a) What is assembly line balancing? **03**  
 (b) Discuss capacity planning with an example. **04**  
 (c) Following is the period demand forecast for a company : **07**

Period	1	2	3	4	5	6
Demand	320	410	470	350	290	310

Consider following plans and choose between the two.

- (i) Produce for average demand through out the periods, change the work force level to meet the balance.  
 (ii) Produce 200 units every period and meet the balance by subcontracting.  
 Cost data as per : Hiring cost Rs. 100/person, Firing cost Rs. 75/person, Subcontracting cost Rs. 75/unit

- Q.8** (a) Discuss Aggregate planning. **03**  
 (b) Discuss MPC system schema. **04**  
 (c) Using Heuristic approach, solve the following problem for a cycle time 8 min. and find :- **07**  
 (i) Mini. no. of work stations &  
 (ii) Line efficiency

Operation	1	2	3	4	5	6	7	8	9	10	11
Immediate Predecessor	-	-	1,2	3	4	4	5	6	6	8,9	7,10
Time (Min.)	3	3	6	2	4	2	5	7	3	5	4

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