Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER–I(New course)• EXAMINATION – WINTER- 2015

Subject Code: 2714607 **Date: 04/01/2016**

Subject Name: Advance Production and Operation Management

Time:2:30 pm to 5:00 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 the scope of Production Management and Operation Management. **07**

Justify the need of Operation Management in Production as well as service industries. Draw suitable block diagram.

(b) Enumerate the steps of New Product Development. Explain each stage briefly. **07**

Q.2 **(a)** Attempt following questions. **07**

(i) What are the advantages of standardization?
(ii) Explain the criteria for make or buy.
(iii) When Value Analysis should be applied?

(b) An Item has yearly demand of 1000 units. The different costs with regard to make or buy option are as follows. **07**

	Buy	Make
Product cost / unit (Rs.)	80	60
Procurement cost/order (Rs.)	200	-
Setup cost / setup (Rs.)	-	500
Annual carrying cost/ product/ year (Rs.)	16	12
Production rate /year (Rs.)		6000 products

1

OR

(b) What are the functions (responsibilities) of Process Planning Engineer? **07**

Q.3 **(a)** Define following terminologies. **07**

Ready time, Completion time, Due date, Flow time, Lateness, Tardiness, Make span.

(b) Consider the following single machine scheduling problem with weights. **07**

Job (j)	1	2	3	4	5	6
Processing time (t_j)	15	6	5	14	12	10
Weights (w_j)	1	2	1	2	3	1

Determine the sequence which will minimize the weighted mean flow time. Also find the weighted mean flow time Fw.

OR

Q.3 **(a)** Solve the following single machine scheduling problem using EDD rule. **07**

Job (j)	1	2	3	4	5	6
Processing time (t_j)	8	7	9	8	10	14
Due Date (d_j)	14	12	10	16	20	28

Determine: (i) the sequence which will minimize the maximum lateness ($L_{max.}$), (ii) $L_{max.}$ with respect to the optimal sequence, (iii) Idle time of machine 2.

(b) Consider the following 2 machines and 5 jobs flow shop scheduling problem. Using Johnson's algorithm, obtain the optimal sequence which will minimize the make span. **07**

Job (i)	Machine 1	Machine 2
1	7	8
2	1	4
3	15	12
4	8	5
5	11	6

Q.4 **(a)** What are the operational service strategies in service management? Which parameters are focused in this? Explain with example. **07**

(b) What do you mean by 'Just in Time' production system? Explain following elements of JIT. (i) Focused factory network, (ii) Quality at source **07**

OR

Q.4 **(a)** Explain operational classification of services. Compare high and low contact system. **07**

(b) Explain: 'P' Kanban and 'C' Kanban production control system. **07**

Q.5 **(a)** How Job enlargement is done? Explain about Job enrichment. What is Job rotation? **07**

(b) What is Business Process Reengineering (BPR)? Briefly explain steps of BPR implementation. **07**

OR

Q.5 **(a)** What are different work measurement techniques? Explain work sampling technique. **07**

(b) What is Lean Manufacturing? Briefly explain the steps of implementing Lean Manufacturing. **07**

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