

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014****Subject code: 1724602****Date: 18-06-2014****Subject Name: Production and Service Operations Management****Time: 02:30 pm - 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) What do you mean by production operations and service operations management? What is the major difference between these two? Support your answer with suitable example. **07**

(b) What is strategic management? Discuss functional strategies in detail. **07**

Q.2 (a) 1. The attributes of the world class manufacturing are aimed to fulfill the customer demands. – Justify the statement. **07**

2. What are the responsibilities of a process planning engineer?

(b) Explain value engineering procedure and state its advantages and area of application. **07**

OR

(b) An item has yearly demand of 1500 units. The different costs with regard to 'make' and 'buy' options are as follows. **07**

	Buy	Make
Item cost/unit (Rs.)	10.00	9.50
Procurement cost/order (Rs.)	10.00	---
Setup cost/setup (Rs.)	---	60.00
Annual carrying cost/item (20% of item)	2.00	1.90
Production rate/year	---	5500 units

Do the economic analysis and decide which option should be selected whether 'buy' or 'make'.

Q.3 (a) Briefly explain different tools for concurrent engineering. **07**

(b) State the conditions that characterize the basic single machine scheduling problem. Also define due date, completion time, flow time, lateness, tardiness and weighted mean flow time. **07**

OR

Q.3 (a) A consulting company is under contract to carry out five projects, all with deadliness assured in days from now. The consultants are a small group and they work together on each project, so that the project will be started and completed sequentially. Under the terms of contract, the consultants will receive Rs. 28,000/- for each project completed on time, but they will incur Rs. 45000/- as penalties for each project completed late. Each project has an associated duration, which is the anticipated number of days required to carry out the project as shown below. How should the projects be sequenced in order to maximize net revenues? **07**

Project ID	1	2	3	4	5
Duration (t_i)	3	5	7	9	10
Deadlines (d_i)	7	11	28	20	11

- (b) Consider the following two machines and six jobs flow shop scheduling problem. Using Johnson's algorithm, obtain the optimal sequence which will minimize the make span. Also find out the make span for this schedule and idle time on machine. **07**

Job, i	Machine 1	Machine 2
1	5	4
2	2	3
3	12	13
4	9	1
5	8	9
6	11	10

- Q.4** (a) Discuss the nature of services. Explain service businesses and internal services. **07**
 (b) Define job design. State the decisions involved in job design and explain factors affecting these decisions. **07**

OR

- Q.4** (a) Explain specialization of labour and job enrichment. State the advantages and disadvantages of specialization of labour to the management. **07**
 (b) Explain design of service organization and discuss the factors and conditions affecting the design of service organization. **07**

- Q.5** (a) Define and explain the basic principles of JIT manufacturing system. State the advantages of JIT and discuss the application areas of JIT manufacturing system. **07**
 (b) What is Kanban system? Explain the steps which are followed in a Kanban system. State the advantages of Kanban system. **07**

OR

- Q.5** (a) What is business process reengineering? List and explain the steps of business process reengineering. **07**
 (b) Define lean manufacturing and state the objectives of lean manufacturing. Discuss the steps of lean manufacturing. **07**
