

GUJARAT TECHNOLOGICAL UNIVERSITY
MBA – SEMESTER 2– EXAMINATION – SUMMER 2019

Subject Code: 4529205**Date:16/05/2019****Subject Name: Production and Operations Management****Time:10:30 AM To 01:30 PM****Total Marks: 70****Instructions:**

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

| Q. No. | | Marks |
|-----------|--|----------|
| Q.1 | Answer the following questions. (a) Explain term Robust Design (b) Define Concurrent Engineering (c) Safety Stock (d) Explain TQM (e) Capacity Planning (f) Just in Time (g) Differentiate between PERT Vs. CPM | 14 |
| Q.2 | (a) Explain Product Life Cycle of a product and Write a note on various types of process design (b) Write a note on capacity planning for manufacturing, What is the difference among Design Capacity, Effective capacity and Actual capacity? | 07 07 |
| | OR | |
| | (b) Differentiate among Outsourcing, Off shoring, Near Shoring and Farm shoring. | 07 |
| Q.3 | (a) Explain Usages of Gantt Chart with diagram and example with respect to Project Management (b) Write a note on various ISO Standards pertaining to quality, safety and environment. | 07 07 |
| | OR | |
| Q.3 | (a) Amol an inventory manager and his team of Supply chain department at M/s Gurukul Machine Tools have lots of inventory tracing issues and short supply issues. Company at present is unable to invest heavily on any software or ERP to solve the problem. Please suggest them proper tool to reduce tracing time and ensuring proper inventory controls. (b) At a small branch of ICPBI Bank, they have kept two counters one for cash deposit and one for cash issuance. They have been observing long queues in the morning hours at both the counters and creates dissatisfied customers. They have appointed you as consultant, what all parameters you will record to help them in better customer services and how your learning of operation research mathematics will help you to find solution and improved customer relationship? | 07 07 |

Q.4 For a given Project data is as follows, Answer the questions given below using This data.

| Activity | Required Predecessor(s) | Time estimate (Days) | | Incremental Crashing Cost |
|----------|-------------------------|----------------------|------------|---------------------------|
| | | Normal Time | Crash Time | |
| A | - | 6 | 5 | 50 |
| B | - | 8 | 7 | 100 |
| C | A | 9 | 8 | 80 |
| D | A | 11 | 7 | 60 |
| E | B | 5 | 1 | 90 |
| F | B | 7 | 7 | --- |
| G | D,E | 7 | 2 | 40 |
| H | F | 8 | 3 | --- |
| I | C | 7 | 6 | 100 |
| J | I,G,H | 2 | 1 | 50 |

- (a) Draw a network diagram and find out critical path. **07**
- (b) If total cost for performing all these activities is Rs. 2000/- and cost of supervision is Rs. 100 per day , Penalty Rs 300/- day for over 25 days and reward Rs. 200 per day for less than or equal to 21 days find out total cost of project after 4th crashing. **07**

OR

- Q.4** (a) Average Daily demand for certain product is 60 units per day ,with a standard deviation of 7 units . Lead time is 6 days , Cost of placing order is Rs. 10/- per order and annual holding cost is Rs. 0.50 per unit, Assume sales occur entire 365 days. Calculate Reorder quantity and reorder point to satisfy 95% probability of no stock out during lead time. (Assume Z value as 1.64). **07**
- (b) Write a note on X bar (from R chart) and R control charts with suitable small example and use and importance of Control charts in quality control. **07**

Q.5 CASE STUDY: M/s Sun Lubricants Ltd. (SLL)

Mr. Ashok was a bright individual who joined M/s SLL as Engineer's position in a medium-sized manufacturing firm. After his second year in his role, the officers of the firm were starting to include him in major plant related decisions in the company.. For instance, today he was attending the monthly financial statement summary given at a prestigious consulting firm. During the meeting, He was intrigued at how all the financial data he had been accumulating was transformed by the consultation firm into revealing charts and graphs.

Mr. Ashok was optimistic about the information analyses and was also excited to know about the company's expansion plan and was curious to hear that the plant production capacity was likely to increase. Consultant started talking about the new manufacturing plant the company was adding to the current location and the costs per unit of the chemically composed products it produced and will be produced now onwards. At that time, Mr. Sanjay Deshmukh (the President) and Mr. Sanjay Prakash (GM), raised the key issues about waste treatment and disposal problems at present plant is facing as well as for the future waste disposal concerns. Mr. Sanjay Prakash mentioned that the current waste facilities were not adequate to handle the waste products that would be created by the "ultramodern" new plant as the present plant is being also served the notice by various controlling body which monitor pollution controls. Mr. Deshmukh also mentioned that the company could not grab certain large orders from various multinational companies as plant does not have any accreditation on environmental standard. Besides He also mentioned that the quality of the product has been not up to the consistent standards. Mr. Arpit Saha Manager, Engineering, informed about the need of an hour for implementation of certain professional production and operations management concepts for the improvement of quality, productivity and to control the pollution generated by the organization. They also viewed that the estimated cost per unit produced would be increased if the waste treatment facilities were upgraded according to recent industry standards. However GM Mr. Sanjay Prakash also mentioned that since their closest competitor did not have the waste treatment facilities that already existed at their firm, he was not in favor of any more expenditures in any of these areas like new production concepts implementation or any accreditation or certification or auditing cost in this area. He added the same will increase the production cost implemented and it will adversely effect sales performance. Most managers at this meeting resoundingly agreed with, and business continued on to another topic.

It was an unpleasant support for Mr. Ashok who was aggressively in favor of change and who wanted higher operational efficiency through professionalism and also wanted to be concerned for environment with proper accreditation and certification.

Mr. Ashok however was given a chance to work and prepare a suggestions plan for betterment of the plant what he had in mind. He at the first instant thought of having clear, Quality Policy and EHS policies for the organization and started to begin with the same

- (a) Critically evaluate views of Mr. Sanjay Prakash, who thinks of not to add any cost in upgrading environment standards as it may add to production cost and contradictory views of Mr. Ashok 07
- (b) Help Mr. Ashok in Preparing a "Quality Policy Statement" and "EHS Mission" for the organization. 07

OR

- (a) Mr. Ashok thought of implementing Lean Manufacturing concept in the existing and upcoming plants. Will that be helpful in companies cost reduction drive? Justify your response with logical justification. **07**
- (b) How company can earn better control on environmental standards and what type of auditing or accreditation company will have to go for the preliminary level as well as advance levels? **07**

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