

GUJARAT TECHNOLOGICAL UNIVERSITY**MBA PART TIME - SEMESTER-V EXAMINATION – WINTER 2020****Subject Code:4559971****Date:04/01/2021****Subject Name:Specialization-POM_Operations Research (OR)****Time:10:30 AM TO 12.30 PM****Total Marks: 47****Instructions:**

1. Attempt any two questions from Q1 to Q4.
2. Q5 & Q6 are compulsory.
3. Make suitable assumptions wherever necessary.
4. Figures to the right indicate full marks.

Q. No.	Question Text and Description	Marks
Q.1	Definitions	06
a	(a) Robust Design (b) Safety Stock (c) TQM	
Q.1	Definitions	06
b	(a) Usages of Gantt Chart (b) Project Management (c) Just in Time	
Q.2	(a) Write a note on capacity planning for manufacturing, What is the difference among Design Capacity, Effective capacity and Actual capacity?	06
	(b) Explain Product Life Cycle of a product and Write a note on various types of process design	06
Q.3	(a) Write a note on Just in Time and Kanban Concepts of Lean Manufacturing	06
	(b) Write a note on various Process layouts with suitable examples.	06
Q.4	(a) What is SQC (Statistical Quality Control), Explain role of control charts in Quality Controls	06
	(b) Write a note on Centralization Vs. Decentralization of Authorities and Responsibilities with respect to operations management.	06
Q.5	(a) 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 create dissatisfied customers. They have appointed you as consultant, what all parameters you will record to help them in better customer services and how you're learning of operation research mathematics will help you to find solution and improved customer relationship?	06
	(b) 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.	05

OR

- Q.5** (a) Write a note on various ISO Standards pertaining to quality, safety and environment. **06**
- (b) Explain Usages of Gantt Chart with diagram and example with respect to Project Management **05**

Q.6

A leading Air -conditioning manufacturing company ABC Ltd. decided to have their new manufacturing plant at Union Territory of Dadra and Nagar Haveli in the year 1994 as Government declare the Union Territory as Sales Tax Free Zone and gave benefit of wavier of Central Sales Tax of (around 15%) for 15 years from the date of establishment. However other factors cost them heavily on and after the establishment. As a result of which the overall cost benefit in manufacturing after establishment was nearly about 6 to 7% only instead 15% expected. However 6 % reduction in manufacturing cost gave sizable advantage to the company in dropping sales price as a result of which the sales of the product grew up by around 20% in next three years with the improved margins.

Company has been manufacturing consumer durable air conditioning products like window air conditioners and split air conditioners at Dadra plant. There are more than 10 different competitors in the segment from the companies of Japan, USA, South Korea, China etc. The market is also having unorganized non branded players present in each part of the country, who all takes away around 15% of the total business. Competitive revelry is extremely high in the market and each marginal rupee saved is rupee earned is the situation for the manufacturers.

Year 2017 turned very challenging for all the organizations in the country as ruling Government violated all the different taxes applicable with business and introduced new single tax, known as GST (Goods and Service Tax). GST is now applicable to all the manufactures equally irrespective of their location or situation. This has taken away now the price competitive advantage ABC Ltd had over its competitor players. On the one hand domestic air conditioning business was under constant pressure of margins and on the other hand post GST ABC Ltd manufacturing cost have gone up by 6 to 8% and the prices are now challenged in the market by the competitors. These created worry some situation for the top management of the company and constant conflicts were prevailing between sales team and production team.

After losing few more weeks as a part of conflict resolution mechanism, board of governor of the company arrived at a conclusion that it is advisable to shift the plant to South India where 50% of the company's product are shipped to achieve cost benefit in the transportation. Top management estimated that they will have a major savings in the logistics and they will be able to drop the cost of production by around 3 to 5% by relocating the plant. Company estimates that the payback of the relocation cost will be within three years.

After losing sizable time and resources, company decided to shift the manufacturing facility to another state (Tamil Nadu). After doing so, the major challenge company's board of director were facing that of , having production started on planned date as they lost sizable time. Project head was guided to use Project management tool to recover the lost time of 2 months in shifting and relocation. Second and important challenge for the company officials was to maintain the consistency in quality – in spite of expediting manufacturing plant execution process and dropping the cost at every stage.

- (a) According to you , what all factors company ABC Ltd. could have considered before the establishment of plant at Sales tax free zone of Dadra and Nagar Haveli ? Was that the correct decision of the company to locate plant there? **06**
- (b) What competitive advantage M/s ABC Ltd had over its competitors prior to GST applicability? Now post GST which is the major challenges company is facing? **06**
- OR**
- (a) What alternative solution Board of Governance of the ABC Ltd. found to reduce the cost of manufacturing? Evaluate the decision is that sustainable? **06**
- (b) Which are the major challenges companies will be facing in relocating plant and after relocation of plants? How Project Management will help in recovering the time lost? **06**
