

1471242

No. of Printed Pages : 8.

MS-96

MANAGEMENT PROGRAMME (MP)

Term-End Examination

June, 2019

MS-96 : TOTAL QUALITY MANAGEMENT

Time : 3 Hours

Maximum Marks : 100

Note : There are two Sections—Section A and Section B. Answer any three questions from Section A. Section B is compulsory.

Section—A

20×3=60

1. Explain the concept of Juran's Quality Trilogy.
2. Describe the relationship between Corporate Strategy and TQM giving examples.
3. What do you understand by 'Reliability' ? How is reliability applied in organizations considering it as one of the critical dimensions of quality ?
4. Discuss the various reasons for doubting the evaluation of an individual's performance in an organization.

5. Briefly explain the following :
- (a) Environment Management System (EMS)
 - (b) Quality Management System

Section—B

40

6. Read the following case and answer the questions given at the end :

Case Study :

3M was found in 1902 in Minnesota. In 2000, 3M was diversified company with leading market share in electronics, telecommunication, industrial, consumer and office, healthcare, safety and many other markets. The company had operations in 60 countries and it served in nearly 200 countries. New appointed Chairman, CEO W. James McNerney Jr. applied the concept of Six Sigma to 3M in order to improve customer satisfaction and cost savings. A black belt in Six Sigma was assigned for its implication in Six Sigma. A Six Sigma project typically lasts for six months. For existing projects, five-step DMAIC model was used and for new projects, DFSS was used. In

existing ones, DMAIC model was inculcated in selected processes. In new projects, with the help of DFSS, the product was designed according to the customers' requirements and for risk reduction in the design-process tools like quality function deployment and computer simulation for design characteristics were used. The super "Y" identified for 3M are DSO, inventory and commercialization cycle time. Six Sigma is a uniform process used by employees, customers and suppliers to improve efficiency, reduce cost and time increase cash flow and satisfy customers. \$1 billion investment was made in R & D and was expected to yield profit more than the investment. 3M plans to introduce e-productivity for better connection with its customers. Six Sigma is meant to satisfy customer driven expectation and hence its adaptation in 3M is significant. Through incorporation of Six Sigma in the "DNA" of the company is 3M's future plan and its senior

management is also planning to make black belt in Six Sigma mandatory for all executives.

Benefits of Six Sigma include majorly improvement in customer satisfaction and cost reduction. The designs of the new projects were according to the customers' requirements. Benefits of Six Sigma also include increase sales; develop managers, increase cash flow, quality improvement with reduced variability, efficient productivity and processes acceleration, and single management system. Incorporation of e-productivity via electronic media will be beneficial to both 3M and its customers. Purchase of resources in strategic ways will reduce cost. Six Sigma develops transferrable skills. More than 4000 employees will be trained by 2000. Sharing of information amongst the employees has increased. After second year of Six Sigma's incorporation, the operating income is expected to increase by \$300 million to \$450 million and cash flow will improve by \$250 million to \$400 million. Greater returns on \$1 billion investment on R & D are expected.

Cost : Financial investment for reduction of risk by verification with potential customers, use of various tools like quality function deployment and Computer simulations is required in Six Sigma and salary of full time appointed black belt in Six Sigma. The team leaders and management of the process selected for Six Sigma are held accountable for the result. Each project costs six months of time.

Risks : There was not much of potential risk because Six Sigma is a process based on quality improvement with reduction in variation. Reduction of risk by verification with the potential customers might some time fail because of some errors as wrong selection of target market might result into high risk taking release of the product. Six Sigma training is crucial for every employee because it requires detailed understanding about the process for its successful incorporation. The project, people and tools selection for Six Sigma is very crucial. Selection errors might result in

failure of incorporation of Six Sigma in that project.

Additional waste of time, money and efforts cannot be overlooked.

Areas with highest returns for the investors are chosen for Six Sigma programme. Other priority criteria include the required resources and timing, growth, cost reduction and cash savings.

During the incorporation of Six Sigma in the existing processes, upper management strategically selects specific processes for improvement and a senior executive was considered the "Champion" of the team of that process. A black belt was assigned to improve the process and train the employees.

Incorporation of Six Sigma in maximum projects can result into faster, better and improved products output which in turn will satisfy the customers. This will conclude to increase in more cash flow. Strategic purchase

and maintenance of inventory can reduce the operation cost.

Human resource implications include leaders who are totally committed and involved. Smart and motivated employees who are ready to work thoroughly with Six Sigma are essential.

There are some brilliant innovations in 3M after Six Sigma programme. One of them is time reduction. Before Six Sigma, a team can complete a project in two months and with Six Sigma, a team can complete it in few weeks. Data driven decisions are made instead of experience and intuition based decisions. 3M's ESPE division has won Malcolm Baldrige award for process improvement. Entitlement concept worked in Six Sigma very well.

Six Sigma is not enough because it was removed from R & D by Buckley, new CEO because it was perceived to be restricting innovations and in order to satisfy customers, innovations are significant. It also includes complicated and too much statistics. It does not

work well for service processes. Training cost is very high. Buckley, new CEO removed Six Sigma from R & D because in his view it restricted the innovation and risk taking culture of 3M. Improvement until 3.4 parts per million defects is difficult to achieve. Hence, Six Sigma should be applied to selected areas in order to enhance innovation as well as improve quality and decrease variability.

Questions :

- (a) What are the associated benefits, costs and risks of the Six Sigma programme for an organization ?
- (b) How can the various functional areas be included in the Six Sigma programme ?
- (c) Are there any human implications, in deploying Six Sigma in the organization ? Explain.
- (d) Does Six Sigma have impact on the innovative culture of the organization ? Discuss.