**[Total No. of Questions - 9] [Total No. of Printed Pages - 3]**
**(2125)**

**15179**

**B. Tech 5th Semester Examination**

**Total Quality Management (NS)**

**ME-300(b)**

**Time : 3 Hours** **Max. Marks : 100**

*The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.*

**Note :** Attempt Five questions in all, selecting one question from each sections A, B, C and D. Section E is compulsory. Assume missing data suitably, if any.

## SECTION - A

1. (a) Define quality and discuss its evolution. State the dimensions of manufacturing and service quality and explain them in detail.

   (b) Discuss the philosophies of Deming , Juran and Crosby in the field of quality control and provide comparison among them. (10+10=20)

2. (a) The safe operation of an automobile is dependent on several subsystems (e.g., engine, transmission, braking mechanism). Construct a cause-and-effect diagram for automobile accidents. Conduct a failure mode and effects criticality analysis and comment on areas of emphasis for prevention of accidents.

   (b) You are asked to make a presentation to senior management outlining (i) the demand for a product. (ii) field failure complaints of a product . Describe the data you would collect and the tools you would use to organize your presentation for the two cases. (10+10=20)

**[P.T.O.]**



## SECTION - B

3. (a) Define TQM. State basic concepts of TQM. What are some reasons for failure of total quality management in organizations? Discuss.

   (b) "TQM revolves around three main themes: the customer, the process, and the people." Justify the statement. (10+10=20)

4. Explain (i) Demings PDCA cycle, (ii) 5S practices, (iii) Supplier rating, (iv) Supplier selection. (5+5+5+5=20)

## SECTION - C

5. (a) State the reasons to benchmark. Specific steps for benchmarking vary from company to company, but the fundamental approach is the same. Explain different benchmarking models.

   (b) Describe Six Sigma approach as new management tool for quality improvement in detail. Define DPMO level. (10+10=20)

6. (a) Define Quality Function Deployment (QFD) and state its importance. What are different phases of use of QFD. Provide details.

   (b) Explain (i) Taguchi quality loss function (ii) Total productive maintenance concepts. (10+10=20)

## SECTION - D

7. (a) What is Cost of quality COQ? Explain the elements of COQ. Discuss various COQ models.

   (b) What are ISO-9000 Quality management Standards? On which principles they are based? Explain. (10+10=20)

8. (a) Give details of TQM implementation in manufacturing organizations. What are some reasons for failure of total quality management in organizations? Discuss.

   (b) State the importance of quality circles and role they play in quality improvement with the help of small case.

   (c) What do you mean by (i) Kaizen (ii) Continous process improvement? Give details. (8+6+6=20)

## SECTION - E

9. (i) Differentiate between Quality control and Quality assurance.

   (ii) State important benefits of ISO-9000 system.

   (iii) What do you mean by internal bench marking?

   (iv) What are Employee Involvement Practices? Discuss.

   (v) Differentiate between off-line and on-line quality control. What are their relative merits and demerits?

   (vi) What is Juran's quality trilogy?

   (vii) With diagrams, explain how histogram is more useful in problem solving than bar diagram.

   (viii) What are ISO 14000 standards? State their importance.

   (ix) What is Operating Characteristic Curve in acceptance sampling?

   (x) A process in control has an estimated standard deviation of 3 mm. The specification limits for the corresponding product are 100 ± 7 mm. Estimate the capability ratio of the process. (10×2=20)