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Paper Code: ME-041	Roll No.										

B.TECH
(SEM VII) ODD SEMESTER THEORY EXAMINATION, 2016-17
TOTAL QUALITY MANAGEMENT

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

Note: (i) Attempt all questions.
(ii) Marks allotted to each question are indicated on right hand side.

Q.1. Attempt any **FOUR** of the following: - **(5x4=20)**

(a) What do you mean by evolution of quality?
(b) Write the principles of TQM.
(c) Explain the methods of manufacturing in the light of flexible and pull manufacturing. What are the three main considerations of modern manufacturing?
(d) What is the role of suppliers in modern manufacturing? Explain the criteria for selecting the suppliers.
(e) What is strategic sourcing? Explain.
(f) Explain quality aspects in sales. What is the role of after-sales efforts in ensuring maximum customer satisfaction?

Q.2. Attempt any **FOUR** of the following:- **(5x4=20)**

(a) Discuss the factors to be considered for organizational structure for quality management.
(b) What do you understand by quality functions? Explain.
(c) What is quality value and how does it correlate with quality cost?
(d) Briefly describe the various quality costs; which cost should a company concentrate most on? Give reasons.
(e) Explain the dimensions of quality.
(f) Human factor is most important element in quality of aproduct. Justify.

Q.3. Attempt any **FOUR** of the following: - **(5x4=20)**

(a) What do you mean by variables and attributes? Explain X and R-charts.
(b) What do you mean by fraction defective? Why p-chart even though much inferior as compared to the $\bar{\bar{X}}$ and R-charts is effectively used in diagnosis of causes of trouble? Explain p-chart.
(c) Control charts for $\bar{\bar{X}}$ and R are maintained on a certain dimension of a manufactured part, measured in cm. The subgroup size is 4. The values of $\bar{\bar{X}}$ and R are computed for each subgroup. After 20 subgroups $\sum \bar{x} = 41.283$ and $\sum R = 0.280$. Compute 3-sigma limits for the $\bar{\bar{X}}$ and R-charts, and estimate the value of 'σ' onthe assumption that the process is in statistical control.
($A_2 = 0.729$, $D_2 = 4.698$, $D_3 = 0.00$, $D_4 = 2.282$)

Q.4. Attempt any **FOUR** of the following: - **(5x4=20)**

(a) What are the key concepts that must be followed as a part of design activity that supports the reduction in repair time to support maintainability?

(b) (1) The time-to-failure probability density function $f(t) = 0{\cdot}01 \quad 0 \leq t \leq 100$ days.

Find: (i) Reliability R(t)
(ii) The hazard rate function
(iii) MTTF
(iv) MTBF.

(2) Define "Reliability" and factor affecting it

(c) What do you mean by ISO 9000? Describe four tiers of quality documentation. Also explain QS 9000 andTE 9000.

Q.5. Attempt any **TWO** of the following:- **(10X2=20)**

(a) What are the seven wastes identified by Shigeo Shingo, asbeing the targets of continuous improvement in production processes?

(b) What is ISO 9000? Explain its salient features.

(c) Write short notes on: (i) JIT Technique (ii) Taguchi Quality Loss Function.