

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0389

Roll No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

B. Tech.

(SEM. VIII) THEORY EXAMINATION 2010-11

RELIABILITY AND QUALITY MANAGEMENT

Time : 3 Hours

Total Marks : 100

Note : (1) Attempt all questions.

(2) Marks allotted to each question are indicated on right hand side.

1. Attempt any **four** parts of the following : **(4×5=20)**
- Define Quality. Explain the difference between quality and total quality control.
 - Explain the difference between Early failure and Wear out failures giving suitable examples.
 - Explain how Availability, Complexity of devices, maintainability, maintenance system practiced and failure history are responsible for system effectiveness ?
 - Explain the Bath Tub Curve.
 - How are Quality and Reliability related ? Up to what extent cost incurred on quality improvement is justified in reference to Reliability ?
 - Explain Preventive maintenance. Up to what extent expenses incurred on preventive maintenance are justified.

2. Attempt any **two** parts of the following : (2×10=20)
- (a) What do you understand by Probability Distribution ?
Explain Poisson Distribution. Under what condition this distribution is applicable ?
 - (b) Explain the importance of Weibull Distribution. Where it can be applied ? Give suitable examples.
 - (c) An Electronic assembly consists of two subsystems, A and B. Each assembly is given one checkout test. Records on 100 preliminary checkout tests show that subsystem A failed 10 times. Subsystem B alone failed 15 times. Both systems A and B failed together five times. Find, what is the probability of A failing, given that B has failed.
3. Attempt any **two** parts of the following : (2×10=20)
- (a) Explain various methods of Data collection and storage. How component reliability can be established using such data.
 - (b) Explain the Fault Free technique for prediction of system reliability giving its applications.
 - (c) Discuss various models for improving System Reliability improvement in detail.
4. Attempt any **two** parts of the following : (2×10=20)
- (a) Briefly describe two failure modes that can occur in modern Integrated circuits. How are Temperature, Electrical stresses and manufacturing quality responsible for these failures ?

- (b) Explain the effect of the following on proper functioning of Electronic components :
- (i) Distortion and Jitter.
 - (ii) Electromagnetic Interfaces.
- (c) Discuss the reliability of electronic components as an overall contributor to system reliability specially from the designers point of view.

5. Attempt any **two** parts of the following : **(2×10=20)**

- (a) What do you understand by total quality management ?
Discuss its key elements in detail.
- (b) What is ISO ? What are the advantages of ISO certification ?
Discuss in detail.
- (c) Write notes on any two :
- (i) Quality Circles
 - (ii) SWOT Analysis
 - (iii) Quality Audit
 - (iv) Cost of Quality.