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Printed Pages : 3 TEC – 033

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

PAPER ID : 0389 Roll No.

B. Tech.

(SEM. VIII) EXAMINATION, 2008-09

RELIABILITY AND QUALITY MANAGEMENT

Time : 3 Hours] *[Total Marks : 100*

Note : *(1) Attempt* ***all*** *questions. All questions carry* ***equal*** *marks.*

(2) Assume missing data if any.

1 Attempt any **two** of the following : **10×2=20**

(a) Define Reliability and discuss its importance for modern day engineering products. What do you understand by hazard rate and failure rate ?

(b) What do you understand by MTTF and MTBF ? Explain the Bath Tub curve and discuss its importance.

(c) Define quality, maintainability and availability and discuss how they affect Reliability.

2 Attempt any **two** parts of the following : **10×2=20**

(a) What is the significance of failure distributions in the context of reliability ? Explain in detail.

(b) Explain the relationship between Exponential and Poisson distributions in a reliability context.

(c) Write notes on any **two** of the following :

(i) Probability and its application in Reliability Engineering.

(ii) Weibull distribution

(iii) MTBF

(iv) Uses of probability distribution.

3 Attempt any **two** of the following : **10×2=20**

(a) What is system reliability ? How reliability of a system can be increased ? Explain.

(b) What is Reliability Testing ? How component reliability can be predicted from test data analysis.

(c) What is 'Accelerated Testing' and what are the main advantages of this type of testing in comparison to non-accelerated test ? Discuss.

4 Attempt any **two** of the following : **10×2=20**

(a) Why are the thermal aspects of electronic system design important for reliability ? What measures are generally taken to reduce operating temperatures ? What is meant by thermal derating ?

(b) Discuss various failure mechanisms of electronic components. What are the measures taken to reduce failure of elecronic components ?

(c) Describe the ways in which electrical cables and connectors can fail. How can these failures be minimized ? What are 'No Fault Found' failures ? Explain.

5 Attempt any **two** of the following : **10×2=20**

(a) What do you understand by 'Quality', 'Total Quality' and 'Total Quality Management' ? How does it affect reliability ?

(b) What do you know about ISO 9000 cerfitication ? How it is implemented ? What are the advantages of ISO Certification ?

(c) Write notes on any **two** of the following :

(i) Quality and Cost

(ii) SWOT analysis

(iii) Pareto analysis

(iv) Quality Policy.