



Regulation R18

Subject code: 2E8DE

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech. VIII Semester Supplementary Examinations, April 2024

DESIGN OF FAULT TOLERANT SYSTEMS
(ELECTRONICS & COMMUNICATION ENGINEERING)

Maximum Marks: 70

Date: 24.04.2024 Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10X2M=20 Marks)

- 1 Define Reliability.
- 2 Compare failures to faults?
- 3 What is the need for self-checking circuits?
- 4 Explain the advantages of PLA
- 5 Define Controllability.
- 6 What are the draw backs of Reed-Muller expansion Technique?
- 7 Define the types of BIST.
- 8 How do you define BEST?
- 9 What are *User-Defined Registers*?
- 10 Write about *One Serial Scan chain*

Part-B

Answer All the following questions.

(5X10M=50Marks)

- 11 What is meant by active repair time and passive repair time referred in maintainability of a system. Derive the expression for the MTTR. [10]
OR
- 12 With a neat diagram explain the principle of operation of sift out modular redundancy (SMR). Give its merits and demerits. [10]
- 13 Define *Self-checking* and discuss how a circuit is said to be "*Totally self-checking*"? [10]
OR
- 14 Explain the operation of "The Two-rail-Checker" with appropriate example. [10]
- 15 Give the Reed-Muller expansion for a three-variable function. Compute the constants C_1 for the same. [10]
OR
- 16 Discuss with example Design of Testable Combinational logic Circuits, using Syndrome-testable design and list out the Drawbacks. [10]
- 17 As related to BIST, Explain BIST Types. [10]
OR
- 18 Explain in detail about the factors involved in designing a BIST. [10]
- 19 What do you understand by Board Level scan chain structures? Explain various arrangements involved in it in detail. [10]
OR
- 20 Write in detail about TAP controller. [10]