FACULTY OF ENGINEERING

B.E. 4/4 (ECE) II – Semester (Main) Examination, May / June 2012

Subject : **Design of Fault Tolerant Systems (Elective – II)**

Time : 3 hours | Max. Marks : 75

Note: Answer all questions from Part–A and answer any **FIVE** questions from Part–B

PART – A (25 Marks)

1. Distinguish between failures and faults. 2

2. Explain the relation between reliability and the failure rate with help of graph. 3

3. Find the overall reliability of a system, which is modelled with 'N' parallel subsystems of reliablity 'R'. 3

4. What is an operational fault? 2

5. Explain propagation D-cubes. 2

6. Explain about Tripple Modular Redundancy. 3

7. What is meant by time redundancy? 3

8. What is the need for self checking circuits? 2

9. Define controllability. 2

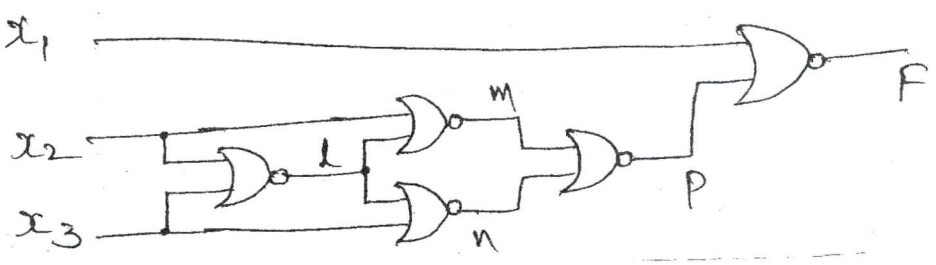
10. List out the advantages of LSSD technique. 3

PART – B (5 x 10 = 50 Marks)

11. Explain in detail modelling of faults. 10

12.a) Explain basic principle of Boolean difference method. 3

b) For the given logic network, determine the tests for checking all single-node faults. 7



13. With a neat diagram explain the principle of operation of 5MR reconfiguration scheme. 10

14. Discuss in detail the following practical fault tolerant systems. 5+5
a) ESS b) COMTRAC

15. Discuss about fail-safe design of sequential circuits using Berger codes. 10