Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_

****

**End Semester Examination – Nov / Dec – 2019**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code :** | **14EC2032** | **Duration :** | **3hrs** |
| **Sub. Name :** | **TESTING FOR EMBEDDED SYSTEM** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. | a. | Support the following definition with an example:  ‘ Two faults *f* and *g* are said to be functionally equivalent if  Z*f* (x) = Z*g*(x)’ | CO1 | 15 |
| b. | Write the causes of observed error and classify the physical faults according to their stability in time. | CO1 | 5 |
| **(OR)** | | | | |
| 2. | a. | Describe the fault dominance relations that can be used to reduce the number of faults for a combinational circuit. | CO1 | 15 |
| b. | Explain the logical fault model and its types. | CO1 | 5 |
| 3. | a. | Summarize in detail the parallel fault simulation techniques with an example and also mention its limitations. | CO1 | 15 |
| b. | Prepare a list of various tasks involved in fault simulation. | CO1 | 5 |
| **(OR)** | | | | |
| 4. | a. | With an example, illustrate how the concurrent fault lists change during simulation. | CO2 | 15 |
| b. | Create a list of applications of fault simulation techniques. | CO1 | 5 |
| 5. | a. | Illustrate the concept of critical path tracing in a fanout-free circuit with an example. | CO2 | 15 |
| b. | Point out the distinctive features of critical path tracing when compared with conventional fault simulation algorithm. | CO1 | 5 |
| **(OR)** | | | | |
| 6. |  | Apply the D algorithm for a circuit and explain how the algorithm propagates the error on several reconvergent paths. | CO2 | 20 |
| 7. | a. | Explain PLA testing cross point fault model with an example. | CO2 | 15 |
| b. | Compare and contrast the types of test pattern generation. | CO1 | 5 |
| **(OR)** | | | | |
| 8. |  | Summarize the concurrent testable PLAs with special coding technique with an example. | CO2 | 20 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Construct a simple built in self test design and justify that built in self test offers several advantages over testing using automatic test equipment. | CO2 | 15 |
| b. | Generate a list of various testing issues in embedded core based systems. | CO3 | 5 |