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| logo1 | **PESIT Bangalore South Campus**  Hosur road, 1km before Electronic City, Bengaluru -100  **Department of Computer Science and Engineering** |  |

**INTERNAL ASSESSMENT TEST 3**

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| **Date :** 05/11/19 | **Max Marks: 60** |
| **Subject & Code:** Intr. To Software Testing (17CS552) | **Section:** A, B and C |
| **Name of Faculty:** D.sudaroli Vijayakumar | **Time: 8**:30 AM-10:00 AM |

**Note: *Answer FIVE full questions. Selecting One question from each part.***

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|  | **Part I** |  |
| 1 | With reference to test execution, explain the concept of scaffolding and test oracles  **Purpose Explanation:( 3 marks)**  Purpose is to provide controllability to execute test cases and observability to judge the outcome.   * + Make the module executable   + Check the interfaces   **Definition and Types:( 3 marks)**   * Code produced to support development activities (especially testing)   Scaffoldings may include  1)Test drivers (substituting for a main or calling population)  2)Test harness (substituting for parts of the deployment environment)  3)Stubs (substituting for functionally called or used by the software under test.  Generic and Specific explanation  **Test Oracles:**   * Software that applies a pass/fail criterion to a program execution is called a test oracle/ oracle * A test oracle may apply a pass/fail criterion that reflects only a part of the actual program specification, or is an approximation, and therefore passes some program executions it ought to fail * The best oracle we can obtain is an oracle that detects deviations from expectation that may or may not be actual failure * **Comparison explanation and diagram( 2 Marks)** * **Self Checking Oracle (2 marks)** * **Partial Oracle(2 marks)** | **12** |
|  | OR |  |
| 2 | How does the analysis principles differ from testing? Explain the following analysis principles with suitable examples.   1. Sensitivity 2. Redundancy 3. Restriction 4. Partition 5. Visibility   **Solution:**  **Definition for every terminology ( 1\*6=6 marks)**  **Example explanation (6 marks)**   * •Sensitivity: better to fail every time than sometimes * •Redundancy: making intentions explicit * •Restriction: making the problem easier * •Partition: divide and conquer * •Visibility: making information accessible * •Feedback: applying lessons from experience in process and techniques | **12** |
|  | **Part II** |  |
| 3a | Differentiate the following   1. Regression and Progression   **Solution( 2 Marks)**  Regression is a testing activity that happens whenever there exists changes with respect to a application  Example: Accounting Software  Progression is the usual testing activity that happens one after the other.  Example: SDLC   1. Reengineering and reverse engineering   **Solution: (2 Marks)**  Reverse engineering is understanding the competitive product completely and trying to replicate the same thing.  Example: Apple and Samsung  Reengineering is a process of development from the scratch. | **4** |
| 3b | Explain the process of Root cause Analysis getting assistance from the 80/20 Pareto rule.  **Solution:**  **Explanation of 80/20 rule (4 marks)**  **How it performs RCA (4 marks)** | **8** |
|  | OR |  |
| 4 | Explain the risks generic to process management along with its control tactics.  **Solution:**  **Definition for the 6 types of risks and the control Statistics ( each carries 2 marks)** | **12** |
|  | **Part III** |  |
| 5a | Integration testing is more detailed than system testing. Justify this with the help of SATM system.  **Solution:**  **SATM diagram ( 3 marks)**  **Explanation on how the integration testing is complex in SATM. (3 marks)** | **6** |
| 5b | What are the factors responsible for requirement changes? How are the requirements traced?  **Solution:( each point carries one mark)**  **Errors**  **Additional Functionality**  **External policies**  **Restructuring**  **Changes in existing technologies**  **Obsolete capabilities may have to be deleted.** | **6** |
|  | OR |  |
| 6 | Explain the Call graph-based Integration.  **Solution:**  **Integration testing ( 2 marks)**  **Pseudocode for SATM9 (4 marks)**  **Graphical Diagram with explanation ( 6 marks)**  **Pairwise and Neighbourhood** | **12** |
|  | **Part IV** |  |
| 7 | Explain the various steps of the regression testing process. Which step is most important and why?  **Solution:**  **Definition ( 2 marks)**  **Example program ( 3 marks)**  **Main()**  **{**  **Int a ,b,c;**  **C=a+b;**  **Printf(“%d”,c);**  **}**  **Modified program (2 marks)**  **Show the modified line**  **Diagram and Explanation(5 marks)** | **12** |
|  | OR |  |
| 8 | Describe the dependability properties in detail.  **Solution:**  **Correctness**  **Reliability**  **Safety**  **Robustness**  **Explanation(9 marks)**  **Define each terminology and mention the measures for measuring it**  **Reliability in MTBF etc.**  **Diagram( 3 marks)** | **12** |
|  | **Part V** |  |
| 9 | Why quality process model on top of software development process model? Explain the cleanroom process and SRET model with suitable diagram.  **Solution:**  **Process model on top of SDLC helps in achieving quality easily satisfying quality parameters(1 marks)**  **Cleanroom( 6 marks)**  **Explanation( 3 Marks)**   * introduced by IBM in the late 1980s, pairs development with V&V activities and stresses analysis over testing in the early phases. * The Cleanroom process involves two cooperating teams,the development and the quality teams, and five major activities: specification, planning,design and verification, quality certification, and feedback.   **Diagram(3 marks)**    **SRET Explanation (2 marks)**  **Diagram(3marks)** | **12** |
|  | OR |  |
| 10 | Suppose a project applied orthogonal defect classification and analyzed correlation between fault types and fault triggers, as well as between fault types and impact. What useful information could be derived from cross correlating those classifications, beyond the information available from each classification alone?  **Solution:**  **The below information should be obtained but a detailed ODC analysis is required.**  **ODC analysis 6 marks**  **And classification 6 marks** | **12** |