

## **B3.E5-R5 : SOFTWARE TESTING AND QUALITY ASSURANCE**

**DURATION : 03 Hours**

**MAXIMUM MARKS : 100**

**Roll No. :**

**Answer Sheet No. :**

**Name of Candidate :** \_\_\_\_\_ ; **Signature of Candidate :** \_\_\_\_\_

### **INSTRUCTIONS FOR CANDIDATES :**

- Carefully read the instructions given on Question Paper, Answer Sheet.
- Question Paper is in English language. Candidate has to answer in English Language only.
- Question paper contains Seven questions. The Question No. 1 is compulsory. Attempt any FOUR Questions from Question No. 2 to 7.
- Parts of the same question should be answered together and in the same sequence.
- Questions are to be answered in the ANSWER SHEET only, supplied with the Question Paper.
- Candidate cannot leave the examination hall/ room without signing on the attendance sheet and handing over his/her Answer Sheet to the Invigilator. Failing in doing so, will amount to disqualification of Candidate in this Module/Paper.
- After receiving the instruction to open the booklet and before answering the questions, the candidate should ensure that the Question Booklet is complete in all respects.

**DO NOT OPEN THE QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

1. (a) What is modular and structured programming ?  
(b) How does agile differ from traditional software development models like the waterfall model ?  
(c) Give difference between the Test Maturity Model (TMM) and Capability Maturity Model (CMM).  
(d) Explain the impact of fault tolerance on software reliability.  
(e) Describe the difference between unit testing and integration testing.  
(f) Explain the Black Box testing with diagram.  
(g) Explain the following terms : (i) Quality Control, (ii) Quality Assurance.

(7x4)

2. (a) What are Industry Practices in Software Development ? Discuss Extreme Programming.  
(b) What are the Phases of Design, Coding, Testing, and Implementation ?  
(c) What is Software Testing ? Why is it important ?

(6+6+6)

3. (a) Write the two main limitations of testing.  
(b) Compare the advantages and disadvantages of top-down and bottom-up testing.  
(c) Is it possible that some bugs identified during software testing may not be fixed ? Discuss.

(5+8+5)

4. (a) Draw a control flow graph for a module for finding the maximum of three numbers. Determine the cyclomatic complexity for the module.  
(b) What is the need of white-box testing if a program successfully passes all black-box tests ?

(12+6)

5. (a) What are the key benefits and drawbacks of automated testing in software development ?  
(b) What is test data selection, and why is it important in software testing ?  
(c) Compare the test data sources: Random sample of cases and Synthetic test cases.

(6+6+6)

6. (a) Define Errors, Bugs and Failures in a software with appropriate examples.  
(b) Write short notes on pre-condition and post-condition software testing.  
(c) Explain the Requirements Traceability Matrix (RTM) in software development lifecycle. **(8+5+5)**

7. (a) What is configuration management in software testing and quality assurance ? Explain with an example of an e-commerce website.  
(b) Write short notes on Quality management models: ISO and SPICE.  
(c) Explain the different aspects of verification and validation associated with quality assurance activities. **(6+6+6)**

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**SPACE FOR ROUGH WORK**