B.E. (Information Technology) Seventh Semester (C.B.S.)
Elective – II : Software Testing & Quality Assurance

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Notes :   1.   All questions carry marks as indicated.
          2.   Solve Question 1 OR Questions No. 2.
          3.   Solve Question 3 OR Questions No. 4.
          4.   Solve Question 5 OR Questions No. 6.
          5.   Solve Question 7 OR Questions No. 8.
          6.   Solve Question 9 OR Questions No. 10.
          7.   Solve Question 11 OR Questions No. 12.
          8.   Assume suitable data whenever necessary.
          9.   Illustrate your answers whenever necessary with the help of neat sketches.

1.   a)   What is a test case? What are the objectives of testing?   **5**

         b)   Explain the differences between failure, error and fault.   **3**

         c)   What are the strengths and weaknesses of automated testing and manual testing?   **5**

OR

2.   a)   Explain the development and testing phases in V model with diagram.   **5**

         b)   Draw and explain different activities in Program Testing.   **8**

3.   a)   Enlist and explain various tools for Unit Testing.   **10**

         b)   Give three characteristics of the version control and configuration management tool.   **4**

OR

4.   a)   What is the objective of debugging? What type of heuristics may be followed to isolate   **10**
              and correct it?

         b)   What do you mean by Mutation Testing? Explain the assumptions made by Mutation   **4**
              Testing?

5.   a)   What are the limitations of control flow based testing?   **7**

         b)   Show that branch coverage includes statement coverage.   **7**

OR

6.   a)   Explain the process of generating test input data for control flow testing.   **10**

         b)   Write short note on predicate coverage criteria.   **4**

7. a) Draw a data flow graph for the binsearch ( ) function given below **8**

      int binsearch (int X, int V [ ], int n)
      { int low, high, mid;
         low = 0 ;
         high = n − 1 ;
         while (low < = high) {
         mid = (low + high) / 2 ;
         if (X < V [mid])
             high = mid − 1;
         else if (X > V [mid]) ;
             low = mid + 1 ;
         else return mid ;
      } return − 1 }

    b) By referring to the data flow graph obtained above, find a set of complete paths satisfying all − defs selection criteria with respect to variable mid. **5**

OR

8. a) Write short note on **6**

      i) System Integration Testing.

      ii) Software and Hardware Testing.

    b) Explain types of interfaces and interface errors in Integration Testing. **7**

9. a) Discuss the importance of Regression testing when developing a new software release. What test cases from the test suit would be more useful in performing a Regression test? **9**

    b) What are the similarities and differences between quality assurance and safety assurance? **4**

OR

10. What are the differences between software testability and reliability? What is more important in a software : high testability or high reliability? Justify your answer. **13**

11. a) What are objectives of Acceptance testing? **5**

    b) Why are Acceptance Test Cases executed in two phases? **5**

    c) What is Software Quality? **3**

OR

12. a) Briefly explain Mc Call's quality factors and quality criteria. **3**

    b) Explain the ISO 9000 : 2000 (Fundamental) document for Quality Assurance. **10**

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