

Total No. of Questions : 11]

SEAT No. :

P842

[Total No. of Pages : 3

[4458] - 793

B.E. (IT) (Semester - I)

SOFTWARE TESTING AND QUALITY ASSURANCE

(2008 Course)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) Answer question number 1 or 2, 3 or 4, 5 or 6 from Section - I.*
- 2) Answer question number 7 or 8, 9 or 10, 11 from Section - II.*
- 3) Answers to the two sections should be written in separate answer books.*
- 4) Neat diagrams must be drawn wherever necessary.*
- 5) Figures to the right indicate full marks.*
- 6) Assume suitable data, if necessary.*

SECTION - I

Q1) a) Define Testing. Explain the difference between the following: **[10]**

- i) Load and stress testing.
- ii) Defect severity and defect priority.
- iii) White box and Black box Testing.

b) What is the importance of Integration Testing? Explain the strategies/ approaches for Integration Testing. **[8]**

OR

Q2) a) Define Test Adequacy criteria. Is complete testing possible? When to stop testing? Explain the difference between random testing and testing using error guessing. **[8]**

b) What is the importance of System Testing? Explain the following methods of Testing with examples: **[10]**

- i) Security Testing.
- ii) Functional Testing.
- iii) Performance Testing.

P.T.O.

- Q3)** a) Explain Equivalence Class Partitioning and Boundary Value Analysis. Develop black box test cases for an ATM system which reads the amount to be withdrawn from the users account. The amount has to be a multiple of Rs. 100 and be less than Rs. 10,000. List any assumptions you make and label equivalence classes and boundary values that you use. [8]
- b) Draw a control flow graph for the code given below. Calculate its cyclomatic complexity. How can you use this value as a measure of testability? [8]

```
int main()
{
    int n, first = 0, second = 1, next, c;

    printf("Enter the number of terms\n");
    scanf ("%d", & n);

    printf("First%d terms of Fibonacci series are : -\n",n);

    for (c = 0; c < n; c++)
    {
        if (c<=1)
            next = c;
        else
        {
            next = first + second;
            first = second;
            second = next;
        }
        printf ("%d\n", next);
    }
    return 0;
}
```

OR

- Q4)** a) Draw and explain the various stages of Software Bug Life Cycle. [8]
- b) Explain the contents of a Test Plan in detail. [8]

- Q5)** a) Write a note on Control Flow Structures. Explain with example sequencing and nesting of flow graphs. [8]
b) Explain the differences between external and internal attributes for different entities like project, product and resources with example. [8]

OR

- Q6)** a) What is customer problem metric? Explain the various approaches to achieve low PUM? [8]
b) Explain GQM technique in detail. Draw a GQM tree to Improve Maintainability. [8]

SECTION - II

- Q7)** a) What are different components of costs for quality software? Explain in detail? [8]
b) Enumerate Ishikawa's seven basic quality tools. Explain Frequency histogram and scatter diagram in detail. [8]

OR

- Q8)** a) Explain with example the cause-effect diagram to analyze a software defect? [8]
b) How are Code inspection and Project Planning helpful in improving the product quality? [8]

- Q9)** a) Explain maturity levels in CMM. Explain the KPA's inter group co-ordination Peer reviews of level 3 in detail. [10]
b) How does the ISO 9000/9001 standard ensure in producing good quality software? [6]

OR

- Q10)** a) What is six sigma? Discuss specification limit, centered six sigma and shifted six Sigma with diagram. [10]

- b) List all the requirements of ISO 9000 and 9001. [6]

- Q11)** Write short notes on any three: [18]

- a) Requirement Management (RM).
b) Software Project Tracking and Oversight (SPTO).
c) Software Configuration Management (SCM).
d) Defect Prevention (DP).
e) Process Change Management.

