

Total No. of Questions :12]

SEAT No. :

**P3437**

**[4959]-212**

[Total No. of Pages :5

**B.E. (Computer Engineering)**  
**SOFTWARE TESTING & QUALITY ASSURANCE**  
**(2008 Course) (Semester - I) (Elective - II)**

*Time : 3 Hours]*

*[Max. Marks :100*

*Instructions to the candidates:*

- 1) Answer any three questions from each section.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) Figures to the right indicate full marks.*
- 4) Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.*
- 5) Assume suitable data, if necessary.*

**SECTION-I**

**Q1)** What is empirical relations? Give the some empirical relation for any attribute. Evaluate any five best-selling word processing programs in todays world with respect to empirical relations. Explain with example. **[18]**

- a) Likert scale.
- b) Forced ranking.
- c) Verbal frequency scale.
- d) Ordinal scale.
- e) Comparative scale.
- f) Numerical scale.

OR

- Q2)** a) Explain the representation conditions for measurement along with measurement mapping with examples. **[6]**
- b) Give the key stages of formal measurement. **[6]**
- c) Give the brief explanation for measurement mapping with example. **[6]**

**P.T.O.**

**Q3)** Calculate the Maurice Halstead's parameters for following code for size and complexity for counting of lines of codes. Parameters are length of program, vocabulary of program, volume of program, program level, difficulty of program, estimated program length, effort required to generate the program. **[16]**

```
int * sort (int A, int N)

int A[100], N, I, J, SAVE, M;

// routine sorts array A into descending order

if (N > 2)
{
    for ( i=2; i<=N; i++)
    {
        M = I - 1;
        for ( j=1; J<=M; j++)
            if ( A[i] > A[j])
                {
                    SAVE = A[i];
                    A[i] = A[j];
                    A[j] = SAVE;
                }
    }
return (A)
}
```

OR

- Q4)** a) Explain DeMarco's approach for functionality measurement. **[8]**
- b) Explain time and space complexity of program & measuring algorithmic efficiency. **[8]**

Q5) a)

A sample specification with defects
Specification for program calculate_coin_value
This program calculate the total rupees and paisa for set of coins. The user inputs the amount of 5 paisa, 10 paisa, 25 paisa, 50 paisa, 1 rupee coins held. There are 5 different denominations of coins. The program output the total rupees and paisa  Input: number_of_coins is an integer Output: number_of_rupees is an integer number_of_paisa is an integer

Above specification has some type of defects. Identify and write down the defects with the specification. [8]

b) Give the comparison between black and white box testing. [8]

OR

Q6) a) Write down input equivalence classes for the following module. [8]

Function square\_root

message ( x: real)

when  $x \geq 0.0$

reply (y: real)

where  $y \geq 0.0$  & approximately  $(y*y, x)$

otherwise reply exception imaginary\_square\_root

end function.

- b) During specification phase as STG (State Transition Graph) has to be generated for a system as a whole and or specific model. Draw the state transition graph or state chart for any behavior of the sample module of your project or any project. Draw the state table for the module and write down the transitions to be tested. [8]

### SECTION-II

- Q7)** a) What are key differences in integrating the procedure oriented systems as compared to object oriented system. [6]
- b) Explain the GUI testing with questionnaire for any hypothetical software project. [6]
- c) Explain acceptance testing with example. [6]

OR

- Q8)** Write down the several types of system tests. Select from these types those you would perform or do for the software described below. For each category you choose [18]
- a) specify the test objectives and
- b) give the general description of the tests you would develop and tools you would need.

You may make any assumptions related to system characteristics that are needed to support to your answer.

An online fast food restaurant system.

The system reads customer orders, relays orders to the kitchen, calculates the customer's bill and gives changes. It also maintains inventory information. Each wait-person has terminal. Only authorized wait-person and as system administrator can access the system.

- Q9)** Explain ISO 9000 with following (any eight) subject matter [16]
- a) Management responsibilities.
- b) Quality system
- c) Contract review
- d) Design control

- e) Document design control
- f) Purchasing
- g) Control of customer's supplied product
- h) Process control
- i) Inspection and training
- j) Test status
- k) Control of quality records
- l) Corrective and preventive actions.

OR

**Q10)a)** Explain Malcolm Baldrige assessment system. **[8]**

b) Give brief description about Ishikawa's 7 basic tools. **[8]**

**Q11)** Write short notes on problem reporting with respect to following points:**[16]**

- a) Logistics in problem reporting.
- b) Tooling in problem reporting.
- c) Challenges in problem reporting.
- d) Best practices in problem reporting.

OR

**Q12)a)** Describe in brief choosing the method for Fix distribution in software maintenance. **[8]**

b) Explain categorization and identification of problem in problem resolution in software maintenance. **[8]**

*EEE*