Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.Tech(ECE)/SEPARATE SUPPLE/SEM-8/EC-803A/2011

2011

SOFTWARE ENGINEERING

Time Allotted : 3 Hours *Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : 10 × 1 = 10

i) Which phase is important to development of a software ?

a) Design b) Coding

c) Testing d) Implementation.

ii) Defect prevention is defined as

a) find and fix error after insertion

b) find and fix error before release but after insertion

c) find and fix error after release

d) avoiding defect insertion.

iii) ISO stands for

a) International Standard Organization

b) International Structured Organization

c) Intermediate Standard Organization

d) Intelligence Standard Organization.

iv) Which of the following is not the main reason to undertake software quality assurance ?

a) Reduced software personnel turnover

b) Legal liability

c) Insistence by the user on a satisfactory software quality assurance program

d) Marketing reasons.

v) Software failure rate is highest during

a) Design phase

b) Testing phase

c) Implementation phase

d) Installation phase.

vi) Alpha testing is performed by

a) Developers

b) Test teams

c) Selected group of friendly customers

d) None of these.

vii) Tracking the correspondence between the design component and the SRS is called

a) Availability

b) Traceability

c) Maintainability

d) Reliability.

viii) The chain activities that determine the duration of the project is the

a) Duration path

b) Critical path

c) Linearly independent path

d) None of these.

ix) Potential risks are best directed by ..... model.

a) Waterfall

b) RAD

c) Prototyping

d) Spiral.

x) An algorithmic cost modelling is

a) COCOMO

b) McCabe cyclomatic measure

c) MTTF

d) None of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. a) What is the difference between top down and bottom up testing.

b) What is alpha testing and beta testing ? 3 + 2

3. a) What is risk containment ?

   b) What is the effect of risk management activity over total cost of project ? 2 + 3

4. a) What is meant by "Quality assurance" ?

   b) What is "Boundary Value Analysis" ? 2 + 3

5. Find the number of independent paths for the program code given below. Draw the CFG int fact(int *x*)

```
{
        int fact = 1, i;
        if ( x == 1 )
                return (1);
        else
                for( i=1; i < = x; i ++ )
                        fact = fact * i;
        printf("factorial =%d", fact);
        return(fact);
}
```

6. a) What is Quality ?

   b) State in brief the CMM model. 1 + 4

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. a) How many types of project are present according to COCOMO ? Give examples.

   b) What is FPA ? Describe the different factors in FPA.

   c) Consider an organic type project has been estimated to be 48000 lines of source code. Assuming average salary for the software engineers Rs. 18,000 per month, determine the effort required to develop the sotfware product, total cost and nominal development time.

   d) What is intial effort and final effort ?

   3 + 4 (2 + 2 + 2) + 2

8. a) What is Reliability Metrics ? Define different types of Reliability Metrics.

   b) Define the utilities of PERT chart with an example.

   c) What are the variations of Waterfall Model ?

   (2 + 6) + 4 + 3

9. a) What is Data Dictionary ? Explain with an example. Why is it used ?

   b) Distinguish between verification and validation.

   c) Describe the McCabe's Cyclomatic Complexity Metric.

   5 + 5 + 5

10. a) Define integration, system and unit testing.

    b) Draw a complete Data Flow Diagram (DFD) and USE CASE diagram of "Online Examination System".

(2 + 2 + 2) + (6 + 3)

11. Write short notes on any *three* of the following : 3 × 5

    a) Spiral model

    b) RAD model

    c) SRS

    d) FPA

    e) Coupling and Cohesion.