[This question paper contains 4 printed pages.]

**Sr. No. of Question Paper : 1914** **C** **Roll No.....**

Unique Paper Code : 234405

Name of the Course : B.Sc. (H) Computer Science

Name of the Paper : Software Engineering (CSHT–410)

Semester : IV

Duration : 3 Hours Maximum Marks : 75

**Instructions for Candidates**

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. The paper has **two** sections.
3. **All** questions in 'Section A' are compulsory.
4. Attempt **any four** questions from 'Section B'.

## SECTION – A

1. (i) List two characteristics that make software different from hardware. (3)

   (ii) Which one is more important – the Product or the Process ? Why ? (2)

   (iii) "A high quality SRS (Software Requirement Specification) is a pre-requisite to a high quality software" – Justify the statement. (3)

   (iv) Differentiate between Prescriptive model and Evolutionary process models for software development. (3)

   (v) Show the software testing steps with the help of diagram. (3)

*P.T.O.*

(vi) What is Defect Removal Efficiency (DRE) ? How it is used to access the team's ability to find errors, as they are passed to the next framework activity. (3)

(vii) What is the significance of Boundary Value Analysis in testing ? (3)

(viii) List the various activities carried out by SQA (Software Quality Assurance) team. (3)

(ix) State the significance of a Gantt chart for scheduling and monitoring a software project. (3)

(x) What are the characteristics of Risk ? Explain different type of risks considered during the software project. (3)

(xi) What is the fundamental difference in activities of analysis and design phases of software process ? (3)

(xii) Differentiate between Private and Public process metrics. (3)

## SECTION B

2. (a) Discuss the problem encountered during software development in case :

- Classical Life cycle is adopted
- Prototyping is adopted (5)

(b) What does the Capability Maturity Model Integration (CMMI) determine ? Explain its five capability levels. (5)

3. Differentiate between the following :

(i) Integration testing vs System testing

(ii) Error vs Defect

(iii) Verification vs Validation

(iv) Coupling vs Cohesion (10)

4. (a) Use the flow graph to find the cyclomatic complexity of the following code. Also show the no. of independent paths and regions :

```
Begin
    i = 1;
    while (i < = n)
    { j = 1;
        while (j < = i)
        {   if (A[i] < A[j])
            swap (A[i], A[j]);
            j = j + 1;
        }
    i = i + 1;
    }
end
```

(6)

(b) Explain white box and black box testing methods. (4)

5. (a) Assume that an organisation produces 450 LOC/PM with a burdened labour rate of $7000/PM. Estimate the effort (in PM) and cost (in $) required to build the software having a total estimate of 70,000 LOC. (5)

(b) Differentiate between risk components and risk drivers. Also give the steps to determine the overall consequences of a risk. (5)

*P.T.O.*

6. Write a short note on :

   (i) Need for SRS

   (ii) Performance testing

   (iii) Structure charts

   (iv) Temporal cohesion (10)

7. Assume that you have to build a web-based order processing system. Draw a context diagram and level 1 DFD of the system. Also develop data dictionary for the same. (10)