[This question paper contains 4 printed pages.]

Sr. No. of Question Paper: 853 E Your Roll No.....

Unique Paper Code : 234405

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

Name of the Paper : Software Engineering

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) Define Software Engineering. Why is it called Layered Technology? (3)
 - (ii) What is Prototyping Process Model? Under what circumstances, it is recommended. (3)
 - (iii) "A high quality SRS (Software Requirement Specification) is a pre-requisite to a high quality software." Justify the statement. (3)
 - (iv) What is Requirement Process? What is its work product? (3)
 - (v) What are the various metrics for Software Quality? Explain any one. (3)
 - (vi) What is an 'object point' in the COCOMO II Model? (2)
 - (vii) Explain the reactive and the proactive risk strategies to deal with software development risks. (3)

(viii) Explain any three levels of Cohesion.	(3)
(ix) What is Defect Removal Efficiency (DRE)? team's ability to find errors, as they are paractivity?	
(x) Briefly explain any three roles of an SQA (group.	Software Quality Assurance) (3)
(xi) What is verification and validation? Explaitesting.	in with reference to Software (3)
(xii) What is Boundary Value Analysis (BVA)? WI	hat are the guidelines to create (3)
SECTION B	
2. (a) What does the Capability Maturity Model Int Explain its five capability levels.	egration (CMMI) determine?
(b) What are umbrella activities? List any four u	imbrella activities. (5)
3. Assume that you have to build a software system(i) allows students to submit their assignments,(ii) provides an environment to the teachers to entire the state of the stat	
(iii) generates the result with minimum input.	
Draw a context diagram and level 1 DFD of the system.	ne above requirements of the (10)
4. (a) Create a flow graph to find the cyclomatic con	nplexity of the following code

Also show the no. of independent paths and regions:

```
long int factorial (int n)
{
    long int fact = 1;
    while (n > 1)
    {
        fact = fact * n;
        n --;
    }
    return fact;
}
```

3

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

5. (a) Compute the Function Point value for a project with the following information domain characteristics:

Measurement Parameters	Count	Weighing factors		
		Low	Average	High
Number of user inputs	36	3	4	6
Number of user outputs	45	4	5	7
Number of user inquiries	48	3	6	9
Number of files	9	7	10	15
Number of external interfaces	6	5	7	10

Assume the measurement parameters equally divided among low, average and high complexity. Further, assume that the complexity adjustment value is 1.25.

(b) Determine the cost and efforts required for the above (Q5 (a)) software project. Assume the average productivity for the project is 5 FP/pm and the labor rate of Rs. 40,000 per month. (4)

- 6. (a) State the significance of a Gantt chart for scheduling and monitoring a software project. (5)
 - (b) How does the consequences of a risk in a software project assessed?
 (5)
- 7. Write differences between the followings (Attempt any four):
 - (i) Error vs Defect
 - (ii) Analysis and Design model
 - (iii) Direct and Indirect measures of Software
 - (iv) Alpha and Beta testing
 - . (v) Top-down and Bottom-up Integration Testing (10)