

Course Code: CSTM51

**Fifth Semester B.E. Examination**

**SOFTWARE ENGINEERING AND PROJECT MANAGEMENT**

Time: 2 Hours]

[Max. Marks: 40

**Instructions to Candidates:**

1. All questions are compulsory
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. Illustrate your answers wherever necessary with the help of neat sketches.

| Question | Description of Question  | Marks | CO  |
|----------|--|-------|-----|
| 1        | (a) Why process is essential in software engineering? Describe a software process framework with neat diagram.   | 05    | CO1 |
| 1        | (b) Why does the failure rate curve for software deviate from being an idealized curve?  | 02    | CO1 |
| 2        | (a) Identify the relationship between the functional and non-functional requirements. How will you gather these requirements? Elaborate.   | 03    | CO1 |
| 2        | (b) Describe the scenario where evolutionary models would be preferable over incremental models with example.  | 04    | CO1 |
| 3        | Consider a supermarket or utility mall scenario and identify 5-7 functionalities and related activities to realize these functionalities. Construct the use case model and the activity diagram for the identified functionalities and activities.   | 07    | CO2 |
| 4        | For the following program<br>a) Construct the flow graph<br>b) Determine the cyclomatic complexity using all three methods<br>c) Design a set of test cases that will ensure that all statements have been executed.<br>{<br>i = 0; n=4; //N-Number of nodes present in the graph<br>while (i<n-1) do<br>j = i + 1;<br>while (j<n) do<br>if A[i]<A[j] then<br>swap(A[i], A[j]);<br>end do;<br>i=i+1;<br>end do;<br>} | 07    | CO2 |

- |   |     |  |    |     |
|---|-----|--|----|-----|
| 5 | (a) | A system has 20 external inputs, 43 external outputs, and fields 16 different external queries, manages 17 internal logical files, and interfaces with 8 different legacy systems. All of these data are of significant complexity and $\sum F_i=63$ . Computer FP for the system. | 04 | CO3 |
| 5 | (b) | Identify and explain the relationship between people and efforts with example.   | 02 | CO3 |
| 6 | (a) | How does an organization manage the many existing versions of a program in a manner that will enable change to be accommodated efficiently? Explain.   | 04 | CO3 |
|   | (b) | Explain two basic characteristics of risk and show the difference between known and predictable risk.  | 02 | CO3 |