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Sub Code: KCS-601

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**B. TECH.**  
**(SEM VI) THEORY EXAMINATION 2022-23**  
**SOFTWARE ENGINEERING**

**Time: 3 Hours**

**Total Marks: 100**

**Note:** Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A**

**1. Attempt all questions in brief. 2 x 10 = 20**

- (a) Define generic software with example.
- (b) Define software components.
- (c) Mention any two non-functional requirements on software to be developed.
- (d) What is meant by software prototyping?
- (e) What do you mean by horizontal and vertical partitioning?
- (f) What is the software architecture?
- (g) Distinguish between verification and validation:
- (h) Distinguish between alpha and beta testing?
- (i) Mention the advantages of CASE tools.
- (j) Define adaptive maintenance.

**SECTION B**

**2. Attempt any three of the following: 10x3=30**

- (a) Iterative waterfall and spiral model for software lifecycle clean and discuss various activities in each phase.
- (b) What are the problems faced in software engineering? Explain each in detail.
- (c) Explain about the structure chart and all its types with suitable example.
- (d) Explain boundary value analysis and its significance with example.
- (e) Discuss Software Configuration Management and various tasks in SCM process. Explain version control and various types of project risks.

**SECTION C**

**3. Attempt any one part of the following: 10x1=10**

- (a) Explain software characteristics in detail. Discuss the reasons of software crisis.
- (b) Discuss the various Mc Call's quality factors with quality triangle.

**4. Attempt any one part of the following: 10x1=10**

- (a) Explain the SEI-CMM model. What do you mean by state of fire fighting.
- (b) What are the various stages of requirement engineering process? Explain it with diagrammatic representation.

5. **Attempt any one part of the following:** **10x1=10**
- (a) Draw the software design framework and discuss the elements of design model.
  - (b) Illustrate the principles of software design. Discuss the characteristics of good software design.

6. **Attempt any one part of the following:** **10x1=10**
- (a) Draw the control flow graph and Calculate the cyclomatic complexity with three methods and independent paths for the given code-

```
IF A = 100  
THENIF B > C  
THEN A = B  
ELSE A = C  
ENDIF  
ENDIF  
PRINT A
```

- (b) Discuss the various types of structural testing techniques with example of each.

7. **Attempt any one part of the following:** **10x1=10**
- (a) Draw the general model of software re-engineering and elaborate it.
  - (b) Write short notes on:
    - (i) Function Point
    - (ii) COCOMO
    - (iii) Defect, Fault, Failure