

- N. B.: (1) **All** questions are **compulsory**.  
 (2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.  
 (3) Answers to the **same question** must be **written together**.  
 (4) Numbers to the **right** indicate **marks**.  
 (5) Draw **neat labeled diagrams** wherever **necessary**.  
 (6) Use of **Non-programmable** calculators is **allowed**.

**1. Attempt any three of the following:****15**

- Define software engineering. Explain the Software Development Life Cycle (SDLC) steps in brief.
- Explain the classification of the software requirements.
- What are the components of software process? Explain.
- Explain the structure of software requirement document.
- Write short note on spiral model.
- What are the principles of agile method?

**2. Attempt any three of the following:****15**

- State and explain the emergent systems properties with example.
- What is legacy system? Explain it with the help of diagram.
- Explain the simple critical system with suitable example.
- Explain the importance of feasibility study in requirements engineering process.
- Write short note on
  - Context model.
  - Object model.
- Explain requirement validation process checks on the requirements in the requirement document.

**3. Attempt any three of the following:****15**

- Write short note on architectural design decisions.
- Write short note on modular decomposition styles.
- Explain user interface design process with the help of diagram.
- Explain the risk management process.
- Write short note on project scheduling.
- What is quality assurance? What are the quality standards types? Explain.

**4. Attempt any three of the following:****15**

- Define verification and validation. Explain software inspection in v & v process.
- Write short note on component testing.
- Explain the test automation.
- Write short note on Function Point (FP) and Line of Code (LOC) measures.
- Explain the Cost Constructive Model (COCOMO) with the formula for computing duration of project and manpower efforts for project.
- Explain the software cost estimation technique.

**[TURN OVER]**

**5. Attempt *any three* of the following:**

- Describe the classification of process.
- Explain the CMMI process improvement framework.
- Explain the services as a reusable components.
- Explain the application framework.
- Write short note on commercial-off-the-shelf (COTS) product reuse.
- What are the architectural patterns for distributed systems? Explain Master-Slave architecture.

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