Sl. No.

C10-R4 : SOFTWARE SYSTEMS

NOTE :
1. **Answer question 1 and any FOUR questions from 2 to 7.**
2. **Parts of the same question should be answered together and in the same sequence.**

Time : 3 Hours   **Total Marks : 100**

1. (a) Differentiate between information and data.

(b) Define the term – Software Reusability.

(c) Mention the advantages of using prototype software development model.

(d) Define multi-agent system with respect to software agent.

(e) What is cardinality & modality in data modeling?

(f) What do you understand by the term data dictionary?

(g) What are functional and non-functional requirements for software?   **(7x4)**

2. (a) Enlist various objectives of Formal Technical Review (FTR)?

(b) What do you mean by software process models? Enlist various types of software process model? Distinguish between software product and software process.

(c) Define the following terms :

(i) ActivityDiagram

(ii) Component Diagram

(iii) Sequence Diagram   **(7+8+3)**

3. (a) Prepare an E-R Diagram for a simple Library Management System and explain it.

(b) Why is Spiral model considered to be a meta model?

(c) What is the role of the architect and UML in software architectures?   **(7+4+7)**

4. (a) Define Re-Engineering. Enlist the main objectives of it?

(b) Explain the concept of Component Based Software Engineering (CBSE).

(c) Describe the layered technologies of software development.   **(7+8+3)**

5. (a) If a team wants to develop a "Customer Address Book" and you are the part of this team, the order of work would be as follows. Product manager creates Use-cases document that include the following Use-cases:
   • User can login to the system.
   • User should be able to create new contacts.
   • User should be able to view their contacts.
   • User should be able to import contacts from other programs.
   • User should be able to email their contacts from the address book.
   • User should be able to add pictures to represent their contacts.
   • There is one admin who can manage all these things.
   Note :   This system must have valid login. Help manager to draw the use-case diagram of overall system that shows Users view with all the elements.
   (b) Explain about OO Methodologies.
   (c) Differentiate between verification and validation.   **(7+8+3)**

6. (a) Design test case for login functionality (Invalid login, Forget Password and Lock account after 3 attempts)
   (b) Enlist and explain the various software characteristics.   **(9+9)**

7. (a) What do you understand by the term "code walkthrough" ? Where the code walkthrough fits in?
   (b) With respect to the software architecture, describe Architecture Description Languages (ADL).
   (c) Define the following terms:
      (i) Milestones
      (ii) Deliverable
      (iii) Safety-critical software systems   **(7+8+3)**

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