# C10-R4: SOFTWARE SYSTEMS

**NOTE:**

> 1. **Answer question 1 and any FOUR from questions 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 Validation and Verification. Who should perform validation test (developer or user)? Justify your answer.

b) What is Formal Technical Reviews? How is it useful in the development of any software system?

c) Explain the following Software Life Cycle Models in brief.
   - i) Linear Sequential Model
   - ii) Spiral Model

d) Do you agree that architecture of the software is important? Justify your answer.

e) Define the following:
   - i) Abstraction
   - ii) Patterns
   - iii) Functional Independence
   - iv) Refactoring

f) What is Use Case? Explain how it can be used for testing?

g) Differentiate between design pattern and framework.

**(7x4)**

**2.**

a) What do you understand by Software Quality Assurance? What are the different SQA activities conducted during the lifecycle of software development? Explain.

b) Why is it good to partition the architecture of the software? How is it useful in overall context of the software development?

**(12+6)**

**3.**

a) Draw a Data Flow diagram and ER diagram for a Library System.

b) Which steps are recommended to evaluate the class model of Object Oriented software system?

**(9+9)**

**4.**

a) Explain all five different types of design classes, each representing a different layer of the design architecture.

b) The specific elements of the requirements model are dictated by the analysis modeling method that is to be used. However, a set of generic elements is common to most requirements models. Explain all common generic elements with example.

**(8+10)**

**5.**

a) What are the advantages and disadvantages of data flow style architecture?

b) What are the advantages of using UML? Draw a Sequence diagram and Activity diagram for the following system: "A university students record keeping System".

**(8+10)**

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**6.**

a) There are several agility principles defines to achieve agility in the software process. List at least eight of them.

b) What are two primary goals of testing? What do you mean by Test Case and Test Suite? Differentiate between Functional Testing and Structural Testing?

c) When should we use a State Chart diagram? Explain with relevant example and justify your answer.

**(6+6+6)**

**7.**

a) What do you understand by component level design? Why is it important? What is the work product of this?

b) Reusability is an important feature of Object Oriented System. What are good practices to be adopted while designing for reuse?

c) Differentiate between Requirements Workflow and Analysis Workflow? How to identify classes from a system?

**(8+5+5)**