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 validation and verification.
b) Compare agent oriented software development and object oriented software development.
c) When we use the UML to develop a design, normally we have to develop which two kinds of design model?
d) *"Patterns and Pattern Languages are ways to describe best practices, good designs, and capture experience in a way that it is possible for others to reuse this experience."-* Given statement is true/false? Justify your answer.
e) Why MTBF is a more useful metric than defects/KLOC?
f) Which are the benefits from software reengineering rather than software replacement?
g) Explain various software engineering layers.

(7x4)

2.
a) State diagram is one of the diagrams of UML. With the help of a suitable example of state diagram, explain the terms: state, transition and event.
b) Explain SDLC with all its different phases.
c) Explain three different types of user testing.

(6+6+6)

3.
a) Compare the Object-Oriented approach with Module Oriented approach.
b) Write a short note for a process model which is particularly useful when staffing is unavailable for a complete implementation by the business deadline that has been established for the project.
c) Prepare Data Flow Diagram for Library Management System also give the problem statement and define the scope.

(6+6+6)

4.
a) Distinguish: White Box Testing and Black Box Testing.
b) List out the activities followed during software reengineering process.
c) Explain logical, process, development and physical views in reference to Software Architecture view models.

(6+6+6)

5.
a) Explain Functional and Non-Functional requirements using example.
b) Explain software reusability. Discuss the possibility of software reusability on different levels.
c) Draw the diagram for structure of analysis model. Explain relationship between data objects, cardinality and modality with example with respect to Data Modeling.

(6+6+6)

6.
a) What is the significance of Graphical User Interface (GUI) in input and output design of a system? Describe characteristics of good user interface design.
b) Explain Include, Extend and Uses relationship in Use case diagram with example.
c) Write a short note on the MOOD Metrics Suite.

(6+6+6)

7.
a) Elaborate the concepts of Coupling and cohesion in reference to modular design approach.
b) Explain feasibility study.

(9+9)