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) Give the reasons why software reusability is important. How does the Object Oriented Software development promote reusability?
b) List down three important characteristics of a bad design that should be avoided. What are the considerations and importance of a good software design?
c) What are advantages and disadvantages of Object Oriented design methodology?
d) What do you mean by functional independence in the context of software design? Write advantages of it.
e) Why is it good idea to keep the scope of effect of a module within its scope of control?
f) It has been said that "The design can not be directed by technical experts alone". Do you agree with this statement? Write in detail to support your view.
g) What is the meaning of modularity and layered in terms of software design?

(7x4)

2.
a) Compare and contrast activity diagram and state chart diagram.
b) What is the role of use-cases identified during analysis phase in Object Oriented Testing? Develop a set of use-cases for the ATM system.
c) What is the meaning of software re-engineering? Why is it required? What are the main objectives of re-engineering?

(6+6+6)

3.
a) Draw the sequence and activity diagrams to withdraw money from a bank account through an ATM.
b) What is UML? How was it conceptualized? What are the main diagrams in UML? How do you relate to each other?
c) What is a model? Differentiate between static and dynamic modeling.

(8+6+4)

4.
a) List down the advantages of using the Design Patterns in Object Oriented Software development.
b) What is a component? What are software engineering activities in component based software engineering? What is Object Oriented view of a component? Explain in brief.
c) What is Software Development Process? Discuss various stages of Software Development Life Cycle. Explain spiral model in brief?

(6+6+6)

5.

a)   List the items generated during the design phase of a software development. Explain: Architectural design.

b)   What do you understand by data dictionary? Explain with an example. Develop an E-R diagram and prepare Data Dictionary for Library Management System?

a)   DFD is a part of analysis or design? What roles does it play? Distinguish between DFD and a flow chart. What do you mean by balancing of DFD?

(4+8+6)

6.

a)   Draw the context level diagram for Food Ordering System.

b)   Define software testing. Describe the testing process. What is the sequence of testing? What is testability?

c)   What would be the test objective for Object Oriented testing? Discuss briefly Object Oriented testing strategies. What are the quality measurements to assure that unit testing is complete?

d)   Explain how use cases can be used for testing?

(2+6+6+4)

7.

a)   What are the useful features of agent based software engineering? What do you mean by software agent? Explain the basic components of software agent?

b)   What are the primary goals of testing? How do you measure the test effectiveness and test efficiency. Write down any three attributes which will impact the testing process.

c)   Explain the difference between software agent and program? Under which situations multi agent system is applicable? How will it be useful?

(6+6+6)