

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) Define feasibility study? List the salient features of feasibility report?
 - b) List the activities needed to be carried out during Project Initiation phase of the SDLC.
 - c) What are the objectives of Formal Technical Reviews (FTR)?
 - d) Develop a set of Use Cases for the Library Management System.
 - e) What are the factors that affect the Quality of the Software?
 - f) Requirements Gathering is an important step of Analysis. What are the dimensions of Requirements Gathering?
 - g) Discuss the role of Cohesion in the design of the Software? Explain the different types of Cohesion?

(7x4)

2.
 - a) What is the basic principle of prototype model? What are the prototyping approaches in software process development?
 - b) Differentiate between object oriented design and function oriented design.
 - c) Explain the following reliability model:
 - i) Basic model
 - ii) Logarithmic
 - iii) Poisson Model

(6+6+6)

3.
 - a) What is sequence of testing? What is testability? How is cyclomatic complexity useful in program test?
 - b) Explain various types of static and dynamic testing tools.
 - c) Compare and contrast between reliability and availability of software.

(8+6+4)

4.
 - a) What are the important roles of Conventional Component in the Software Architecture?
 - b) Differentiate between Class Diagram and Object Diagram.
 - c) What is the use of a data flow diagram? Explain the important concepts of data flow diagram.

(6+6+6)

5.
 - a) Explain the concept of bottom-up, top-down and hybrid design models.
 - b) Spiral model is a realistic approach to the development of large-scale systems and software. Justify and explain the model.
 - c) Define and explain various Object Oriented concepts used in Software Engineering.

(4+8+6)

6.

- a) Design black box test suits for a function that checks whether a character or string up to ten characters is a palindrome?
- b) What is CMM? Describe its levels and compare it with ISO 9001?
- c) What is software agent? Can it be possible to use software agents with legacy systems or legacy code?

(4+6+8)

7.

- a) Explain various types of debugging techniques used during bug removal.
- b) Draw *sequence* and *activity* diagrams for following system:
"Online Mobile Recharge gives us the information about all the mobile service providers. This application provides us the complete information regarding any mobile service provider in terms of their plans, options, benefits, etc. Suppose, any Airtel customer wants to have the information of all the schemes and services provided by the company, he/she can have the information and according to his/her convenience he/she can recharge the mobile from the same application. The major advantage of this proposed system is to have the recharging facility of any service provider under same roof".
- c) What would be the test objective(s) for Unit Testing and System Testing? What are the quality measurements to assure that Unit Testing and System Testing are complete?

(6+6+6)