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) What is the necessity for developing use case diagram?
b) Identify the definite stages through which a software product undergoes during its lifetime.
c) State three important advantages of structured programming.
d) Identify some important shortcomings of the DFD model.
e) State at least five advantages of object-oriented design techniques.
f) What is a decision tree?
g) State at least two basic differences between control flow-oriented and data flow-oriented design techniques.

(7x4)

2.

a) State the properties of a good SRS document. Also, explain the problems without a SRS document.
b) Write down at least three differences between function-oriented and object-oriented design approach.

([7+5]+6)

3.

a) Identify different types of views of a system captured by UML diagrams. Which UML diagrams capture the structural aspects of a system?
b) State the disadvantages of client-server software.
c) What is Component Object Model?

(9+5+4)

4.

a) Write the merits and limitations of formal requirements specification.
b) What is cyclomatic complexity? How is it measured? Give Example.

(8+10)

5.

a) Differentiate between verification and validation. How to design test cases?
b) Differentiate between functional testing and structural testing.
c) State why it is a good idea to test a module in isolation from other modules.

([4+6]+3+5)

6.

a) Explain the need for a prototype in software development.
b) Identify at least two activities carried out during each phase of a spiral model. Mention at least two reasons as to why classical waterfall model can be considered impractical and cannot be used in real projects.

(8+10)

7.

a) State at least three differences between the exploratory style and modern styles of software development.
b) Illustrate the different phases of the classical waterfall model. Also give the activities carried out in feasibility study phase.

(9+9)