B3.3-R4: SOFTWARE ENGINEERING & CASE TOOLS

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 do you understand by Configuration Management?
b) What do you understand by Cohesion Coupling?
c) Describe the phases of the prototyping model for software development?
d) Describe the role of risk analysis in evolutionary process models like the spiral model.
e) What are the primary advantages of the component-based process model for software engineering?
f) Why are incremental process models considered by many to be the best approach to software development in a modern context?
g) Describe the phases of the Unified Process model for software engineering?

(7x4)

2.
a) What are the steps for requirements engineering?
b) What is Reverse Engineering Software Project? Why is it required?
c) List the characteristics that can serve as a guide to evaluate design quality.

(6+6+6)

3.
a) Explain how effective modular design is achieved through functional independence of the individual modules?
b) What is Change Control Process? Explain.
c) Describe the differences between a design pattern and a framework and API.

(6+6+6)

4.
a) Describe the types of dependencies that can exist in an architectural design. Name the different viewpoints of the architectural design.
b) How does the object-oriented view of component-level design differ from the conventional view?
c) Explain few principles that should be applied when building any user interface.

(6+6+6)

5.
a) What is software metric? Explain the characteristics of good software metric.
b) Describe the activities associated with the software measurement process.
c) What is meant by the term "software reliability"? Explain.

(6+6+6)

6.
a) Explain the difference between Software Agent and Program.
b) What are different types of workbenches that support CASE tools?
c) What are the unique characteristics of cleanroom software engineering techniques? Describe some principles of clean room

(6+6+6)

7.
a) Describe what is accomplished during the component qualification, adaptation, and composition activities of component-based development.
b) What is the difference between a Property-Oriented and a Model-Oriented formal specification method? What are their relative advantages?
c) What are the basic attributes of the software agent? Define software agent, what are the concepts included in software agent.

(6+6+6)