No. of Printed Pages : **2**

Sl. No.

C10-R4 : SOFTWARE SYSTEMS

NOTE :

1. **Answer question 1 and any FOUR questions from 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 meant by use case ?

(b) What is the importance of abstract class ?

(c) What is fan-in and fan-out in design diagram ?

(d) What is algebraic specification in SRS ?

(e) In which testing type, we use drivers and stubs programs ?

(f) Why data dictionary is used in Design ?

(g) If a code written in C language has 2 if-else statements, then what is the cyclomatic complexity of the code ? **(7x4)**

2. (a) What is the difference between Verification and Validation ?

(b) Describe coupling and cohesion. List the differences between coupling and cohesion.

(c) What is cardinality in context of ER diagram ? How can we decide cardinality among different attributes in "School Management System" ? **(6+6+6)**

3. (a) Assume the online shopping as case study, in which Online customer can browse or search items, view specific item, add it to shopping cart, view and update shopping cart, checkout. User can view shopping cart at any time. Checkout is assumed to include user registration and login. Draw Activity diagram as per UML notations.

(b) What are two major types of prototyping used in Software engineering ? Discuss the problems associated with prototyping. **(12+6)**

4. (a) Explain Object-Oriented Analysis and Design (OOAD). List advantages and disadvantages of OOAD.

(b) What are the roles played by packages, modules and wrappers in UML ? What is the function of attribute facets in UML ?

(c) What is meant by dynamism in software architectures ? Why is it required to analyze it, in any software ? **(6+6+6)**

5. (a) What are software testing objectives ? Discuss various types of testing in detail.

(b) What is system testing ? Explain different types of system testing.

(c) Why a software should be made as safety critical software ? List software quality metrics. **(6+6+6)**

6. (a) What are the best Industrial Practices for Software Architecture Evaluation that address the root causes of poor software development ?

(b) What are the differences between continuous integration, continuous delivery and continuous deployment ? **(12+6)**

7. (a) Describe software agent with the help of an example.

(b) Explain the role of multiagent system in software project management. **(9+9)**

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