2115

Avinashilingam Institute for Home Science and Higher Education for Women

Deemed to be University Estd. u/s 3 of UGC Act 1956, Category 'A' by MHRD (now MoE)
Re-accredited with 'A++' Grade by NAAC. CGPA 3.65/4, Category I by UGC
Coimbatore - 641 043, Tamil Nadu, India

Bachelor's Degree Examination – May 2025
IV Semester

Class : II UG
Major : Computer Science

Time: 3 Hours
Max. Marks: 100

23BCSC08 Software Engineering

Course Outcomes:

CO1: Acquire strong fundamental knowledge in software engineering.
CO2: Ability to design the software projects in objects oriented models.
CO3: Effectively demonstrate competence in Problem-Solving Approaches.
CO4: Adapt to new emerging technologies and methodologies.
CO5: Assuring software quality standards based on various testing strategies.

Part A **10 x 1 =10**

Choose the Correct Answer

1. Which of the following is NOT a characteristic of software? CO1 K1
   a. Software does not wear out
   b. Software is manufactured rather than developed
   c. Software is flexible
   d. Software is subject to aging

2. Which software development model follows a linear, step-by-step approach? CO1 K2
   a. Spiral Model
   b. Agile Model
   c. Waterfall Model
   d. V-Model

3. Which of the following system models represents the flow of data through a system? CO2 K1
   a. Object Model
   b. Data Dictionary
   c. Data-Flow Model
   d. Semantic Data Model

4. What is the primary purpose of Object Aggregation in Object-Oriented Design? CO2 K2
   a. To encapsulate data and behavior
   b. To define class hierarchies
   c. To represent a "whole-part" relationship between objects
   d. To implement polymorphism

5. Which of the following is a key dimension in process assessment? CO3 K1
   a. Code Efficiency
   b. Time
   c. Hardware Utilization
   d. Programming Language

6. Which assumption in software process assessment differentiates between processes and projects? CO3 K2
   a. Internal or External Drivers
   b. Software or Business Processes
   c. Processes or Projects
   d. Process-Centered or Architecture-Centered

7. Which software metric measures the probability of software functioning correctly in a given environment? CO4 K1
   a. Software Complexity
   b. Software Usability
   c. Software Reliability
   d. Software Maintainability

8. Which of the following is a technique for improving software reliability? CO4 K2
   a. Increasing execution speed
   b. Fault Tolerance
   c. Using multiple programming languages
   d. Reducing storage space

9. Which testing technique is used to test the internal structure of an application? CO5 K1
   a. Black Box Testing
   b. White Box Testing
   c. Boundary Value Analysis
   d. Alpha Testing

10. Which software testing strategy starts testing from the top-level modules and moves downward? CO5 K2
   a. Bottom-Up Integration
   b. Unit Testing
   c. Top-Down Integration
   d. Regression Testing

Part B — 5 x 6 = 30

Answer ALL questions

Each answer should not exceed 400 words or two pages

11.a. Define the evolving role of software in the modern world.	CO1 K2
(or)	
11.b. What are the characteristics of software?	CO1 K3
12.a. What are data-flow models, and how are they used in software design?	CO2 K2
(or)	
12.b. Describe the importance of data dictionaries in system models.	CO2 K3
13.a. What is the importance of assessing process life-cycle models in software engineering?	CO3 K2
(or)	
13.b. Explain the role of time dimension in the software engineering process.	CO3 K3
14.a. Define software reliability metrics and their significance.	CO4 K2
(or)	
14.b. What is fault avoidance in programming for reliability?	CO4 K3
15.a. What are the fundamental principles of software testing?	CO5 K1
(or)	
15.b. Describe the top-down integration approach in unit testing.	CO5 K2

Part C — 5 x 12 = 60

Answer ALL questions

Each answer should not exceed 800 words or four pages

16.a. Define software engineering and explain its importance.	CO1 K2
(or)	
16.b. Compare and contrast the Iterative Development Model and the Incremental Development Model.	CO1 K3
17.a. Define object aggregation and its significance in object-oriented design.	CO2 K2
(or)	
17.b. What is the role of service usage in object-oriented design?	CO2 K3
18.a. Discuss the assumptions related to process-centered and architecture-centered approaches.	CO3 K2
(or)	
18.b. Explain the activities and goals of redefining the software engineering process.	CO3 K3
19.a. Discuss the programming techniques for fault tolerance.	CO4 K2
(or)	
19.b. Explain how to measure software reliability in practical scenarios.	CO4 K3
20.a. Explain the process of organizing for software testing.	CO5 K2
(or)	
20.b. Discuss the principles and techniques of black box testing.	CO5 K3

****