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)
Re-accredited with 'A++' Grade by NAAC. Recognised by UGC Under Section 12B
Coimbatore - 641 043, Tamil Nadu, India

Bachelor's Degree Examination November 2024
V Semester

Class : III UG **Time: 3 Hours**
Major : Computer Science /Computer Applications **Max. Marks: 100**

21BCSC23 /21BCAC20 Software Engineering

Course Outcomes:

CO1.Acquire strong fundamental knowledge in software engineering.
CO2. Ability to apply software engineering principles, techniques, tools and practices.
CO3. Effectively demonstrate competence in communication, planning, analysis, design, construction, testing and deployment.
CO4. Adapt to new emerging technologies and methodologies.
CO5. Cope up with software quality standards.

Part A **10 x 1 = 10**
Choose the Correct Answer

1. Which of the following is NOT a layer in Software Engineering as a Layered Technology? CO1 K1
   a. Process b. Tools
   c. Documentation d. Methods

2. What does CMMI stand for in the context of software process improvement? CO1 K2
   a. Capability Maturity Model Integration b. Computer Maintenance Model Integration
   c. Collaborative Management Model Integration d. Continuous Model Maintenance Integration

3. Which process model is known for emphasizing customer feedback and making small releases quickly? CO2 K1
   a. Waterfall Model b. RAD Model
   c. Spiral Model d. Incremental Model

4. Which of the following is a key characteristic of the Agile Process Model? CO2 K2
   a. Linear development b. Rapid and continuous delivery of software
   c. Rigid requirements d. Full documentation before development

5. Which of the following is NOT a task in Requirements Engineering? CO3 K1
   a. Inception b. Elaboration
   c. Compilation d. Specification

6. In Requirements Engineering, which task focuses on reconciling conflicts between different stakeholders' requirements? CO3 K2
   a. Inception b. Negotiation
   c. Validation d. Specification

7. Which concept in software design emphasizes the hiding of details from modules? CO4 K1
   a.Abstraction b. Modularity
   c. Information Hiding d. Refinement

8. What is the primary goal of architectural design in software engineering? CO4 K2
   a. Detailed testing b. Identifying stakeholders
   c. Creating a blueprint for the system d. Requirement analysis

9. What type of testing is used to ensure a system can recover from crashes and failure? CO5 K1
   a. Security Testing b. Stress Testing
   c. Recovery Testing d. Performance Testing

10. Which of the following testing techniques is used to test the internal structures of the code? CO5 K2
   a. Black box testing b. White box testing
   c. Stress Testing d. Recovery Testing

Part B 5 x 6 = 30

Answer all questions

Each answer should not exceed 400 words or two pages

11.a.	What is CMMI and how does it help in process improvement?	CO1 K2
	(or)	
11.b.	Compare Product and Process technologies in software engineering.	CO1 K2
12.a.	Explain the key differences between the Incremental Process Model and the Rapid Application Development (RAD) Model.	CO2 K2
	(or)	
12.b.	Analyze the advantage of Adaptive Software Development model.	CO2 K4
13.a.	Enumerate the requirements engineering tasks, Inception, Elicitation and Elaboration.	CO3 K1
	(or)	
13.b.	Demonstrate the importance of working toward collaboration.	CO3 K2
14.a.	Describe the concept of modularity and discuss its merits in software design.	CO4 K2
	(or)	
14.b.	Summarize the concept of functional independence and refactoring method with their significance.	CO4 K2
15.a.	Appraise the importance of Stress Testing and Performance testing.	CO5 K4
	(or)	
15.b.	Differentiate between Black Box testing and White box testing.	CO5 K4

Part C 5 x 12 = 60

Answer all questions

Each answer should not exceed 800 words or four pages

16.a.	Explain the key components of Software Engineering as a Layered Technology.	CO1 K1
	(or)	
16.b.	Discuss the significance of Personal Software Process (PSP) and Team Software Process (TSP) in improving software quality and efficiency.	CO1 K1
17.a.	Describe the life cycle of Waterfall model.	CO2 K2
	(or)	
17.b.	Discuss the various Agile Process Models such as Extreme Programming (XP), Scrum, and Feature Driven Development (FDD). How do these models facilitate adaptive development?	CO2 K2
18.a.	Evaluate the different types of software engineering practices. How do they contribute to the success of a software project?	CO3 K5
	(or)	
18.b.	Illustrate the steps in requirements management process.	CO3 K4
19.a.	Discuss the design concepts such as abstraction, refinement, and information hiding. How do they influence software architecture?	CO4 K2
	(or)	
19.b.	Illustrate the process of data design and architectural design with suitable example.	CO4 K2
20.a.	Differentiate verification and validation testing techniques.	CO5 K4
	(or)	
20.b.	What is meant by Basis Path testing and Control structure testing and examine their importance to the overall system reliability.	CO5 K3

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