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BRAINWARE UNIVERSITY

Term End Examination 2025-2026
Programme – B.Tech.(CSE)-AIML-2021/B.Tech.(CSE)-DS-2021/B.Tech.(CSE)-AIML-2022/B.Tech.(CSE)-DS-2022
Course Name – Software Engineering
Course Code - PCC-CSM701/PCC-CSD701
(Semester VII)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Identify the type of control structure that allows a program to make decisions based on conditions.

a) Loop
b) Conditional statement
c) Function
d) Data structure

(ii) Identify the type of structured programming construct used to encapsulate code that performs a specific task and can be reused throughout the program.

a) Module
b) Procedure
c) Variable
d) Class

(iii) Identify the structured programming approach that emphasizes the use of well-defined blocks of code with a clear entry and exit point, making the program easier to understand and maintain.

a) Object-oriented programming
b) Event-driven programming
c) Structured programming
d) Functional programming

(iv) Identify the concept in software engineering that involves concealing the internal implementation details of a module from other modules.

a) Encapsulation
b) Polymorphism
c) Abstraction
d) Information Hiding

(v) Identify the primary benefit of using information hiding in software design.

a) Enhanced modularity
b) Increased complexity
c) Reduced flexibility
d) Improved performance

(vi) Identify the programming practice that allows you to change the internal implementation of a class without affecting other parts of the program.

a) Data hiding
b) Public interfaces
c) Modularization
d) Information Hiding

(vii) Identify the principle that ensures only necessary details of a module are exposed to other parts of the system while keeping the implementation hidden.

a) Encapsulation
b) Information Hiding
c) Inheritance
d) Overloading

(viii) Select the component that is NOT part of the software engineering layered technology

a) Process
b) Methods
c) Tools
d) Organizational Structure

(ix) Select the correct description of Bottom-Up Integration Testing.

a) Integration begins with the highest-level modules
b) Integration starts with the lowest-level modules and moves upwards
c) Integration begins randomly across the modules
d) Modules are integrated without following any specific order

(x) Select the testing method that combines both Top-Down and Bottom-Up approaches.

a) System Integration Testing
b) Regression Testing
c) Sandwich Testing
d) Load Testing

(xi) Identify the model that balances technical feasibility with risk management.

a) Waterfall Model
b) Spiral Model
c) Incremental Model
d) Agile Model

(xii) Select the main goal of Software Quality Assurance (SQA)

a) To identify defects early
b) To improve customer satisfaction
c) To ensure software reliability
d) To reduce cost

(xiii) Identify the primary role of software reviews in software quality assurance.

a) To find bugs
b) To analyze performance
c) To examine code quality
d) To ensure conformance to requirements

(xiv) Identify the statistical technique used to monitor software quality.

a) Control charts
b) Histograms
c) Regression Analysis
d) Statistical Process Control (SPC)

(xv) Choose the quality concept that focuses on the dependability of a software system.

a) Software Performance
b) Software Usability
c) Software Reliability
d) Software Flexibility

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Explain the purpose of an implementation diagram in software design. (3)
3. Solve the issue of overlapping responsibilities in an object-oriented design by applying the Single Responsibility Principle (SRP). (3)
4. Prepare a comparison between the functional and object-oriented approaches in system design, focusing on their handling of system complexity. (3)
5. Prepare a list of key components of software reliability. (3)
6. Classify the different metrics used in software reliability. (3)

OR

Distinguish between software verification and validation. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Analyze when to prefer Top-Down over Bottom-Up design using an Inventory System. (5)
8. Select the most appropriate process framework for a given project scenario and justify your choice. (5)
9. Apply an Activity Diagram to a Student Registration Process. (5)
10. Justify the choice of the Unified Process for a Banking Software Development project. (5)

11. Explain the importance of risk management in Incremental Model using a Flight Booking System. (5)
12. Analyze the drawbacks of using the Waterfall Model in the development of a Social Networking Platform. (5)

OR

Analyze the suitability of the Evolutionary Model for a Smart Home Automation System. (5)

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