17135

BRAINWARE UNIVERSITY

Term End Examination 2025-2026
Programme – BCA-Hons-2023
Course Name – Software Engineering
Course Code - BCA50114
(Semester V)

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) Which term defines the process of developing software in a systematic way?
a) Web Engineering b) Software Engineering
c) Hardware Engineering d) Programming

(ii) What type of software supports the running of application software?
a) System Software b) Utility Software
c) Compiler d) Application Software

(iii) Recognize the challenge in software engineering that is specifically related to scalability issues.
a) Handling large and growing systems b) Choosing fonts
c) Using outdated hardware d) Programming in BASIC

(iv) Identify a core characteristic that defines Agile methods.
a) Emphasis on documentation b) Iterative development with customer feedback
c) Linear process flow d) Requires CASE tools

(v) Classify the hybrid model that merges design with prototyping stages.
a) Waterfall Model b) Incremental Model
c) Spiral Model d) RAD Model

(vi) Choose the appropriate scenario-based technique to clarify ambiguous requirements.
a) Interview transcripts b) Use-case modeling
c) Storyboards d) Regression testing

(vii) Use a logical DFD to model an online ticket booking system and determine what it represents.
a) Hardware specifications b) Physical storage media
c) Data flow between processes and data stores d) Computer network setup

(viii) Identify a valid use-case of a student management system and.

a) Manage library books
b) Register new student
c) Display background
d) Set password rules

(ix) Use a requirement specification format for a mobile application and identify the section describing expected user actions.

a) Design Constraints
b) Functional Requirements
c) Glossary
d) References

(x) Choose the correct context in which alpha testing is typically performed.

a) Performed by users at their site
b) Performed by internal developers before release
c) Used for security testing only
d) Testing only for GUIs

(xi) Choose the testing type that evaluates how the system interacts with external components.

a) Integration Testing
b) Unit Testing
c) Acceptance Testing
d) System Testing

(xii) Apply unit testing and identify the types of errors it is intended to catch.

a) Integration bugs
b) Syntax and logic errors in a module
c) Network issues
d) Data migration errors

(xiii) Choose an approach that correctly applies usability testing in software evaluation.

a) Assessing hardware compatibility
b) Evaluating user-friendliness of interface
c) Measuring CPU speed
d) Tracking bugs

(xiv) Identify the key elements involved in effective software project planning.

a) Requirements and GUI
b) Size estimation, cost estimation, and scheduling
c) Code coloring
d) Menu creation

(xv) Classify the main purpose of the COCOMO II model in cost estimation.

a) To test user satisfaction
b) To code user interface
c) To estimate cost, effort, and schedule
d) To style documentation

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Identify the key challenges faced by software engineers. (3)
3. Summarize the characteristics of the Waterfall model. (3)
4. Demonstrate logical DFD for an ATM system. (3)
5. Explain the need for proper software project management to avoid project failure. (3)
6. Distinguish between alpha and beta testing. (3)

OR

Examine how quality standards affect testing. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. List and describe key characteristics of software. (5)
8. Compare iterative and incremental development models. (5)
9. Design a strategy to gather both functional and non-functional requirements from various stakeholders for a new e-commerce platform. (5)
10. Develop a step-by-step method to evaluate the feasibility of a software project focusing on operational and schedule aspects. (5)
11. Formulate an integrated cost estimation model using function point analysis techniques. (5)
12. Analyze the relationship between cohesion and coupling in software design principles. (5)

OR

Examine how modularity contributes to achieving functional independence in software systems. (5)