2509N512

Candidate's Seat No :_____

B.Sc Sem.-6 (Rep) Examination

CC 307

Computer Science

September-2024

Time : 2-30 Hours] **[Max. Marks : 70**

Q1(A)	Explain the difference between compiled and interpreted programming languages. Include examples of each and discuss the implications of these differences on the development and execution process.	(7)
Q1(B)	Describe the basic structure of a program. Provide an example to illustrate key elements such as variables, data types, control structures (if-else statements, loops), and functions.	(7)
	OR	
Q1(A)	Discuss the concept of algorithms in computer programming. How do algorithms relate to problem-solving in coding? Provide an example of a simple algorithm, and explain how it can be implemented in code.	(7)
Q1(B)	Explain the importance of debugging in the software development process. Describe common debugging techniques and tools that beginners can use, and provide an example of a bug and how it might be resolved.	(7)
Q2(A)	Explain the key differences between verification and validation in the context of software testing.	(7)
Q2(B)	Describe the different levels of software testing, including unit testing, integration testing, system testing, and acceptance testing.	(7)
	OR	
Q2(A)	Discuss the role of a test plan in software testing.	(7)
Q2(B)	What is black-box testing, and how does it differ from white-box testing?	(7)
Q3(A)	Explain the importance of test case design in software testing.	(7)
Q3(B)	Discuss the concept of test automation in software testing.	(7)
	OR	
Q3(A)	What are the common types of software testing metrics, and how are they used to evaluate the effectiveness of the testing process?	(7)
Q3(B)	Explain the basic concept of the COCOMO model and its importance in software project management.	(7)
Q4(A)	Differentiate between the three modes of the COCOMO model: Basic, Intermediate, and Detailed.	(7)
Q4(B)	Illustrate the basic COCOMO formula and explain the significance of its components.	(7)
	OR	
Q4(A)	Describe the role of software size in the COCOMO model and how it is measured.	(7)
Q4(B)	Compare and contrast the use of COCOMO in small-scale versus large-scale software projects.	(7)
Q5	MCQ Attempt any seven out of twelve.(2 Marks each)	(14)

N512-2

1) What is software engineering?
A) Writing code
B) The application of engineering principles to software development
C) Managing computer hardware
D) Debugging software

2) Which of the following is not a software development life cycle (SDLC) model?
A) Waterfall B) Agile C) Spiral D) Hardware Cycle

3) In which phase of the SDLC is the software design created?
A) Requirements gathering
B) Design
C) Implementation
D) Testing

4) Which of the following is a key concept of Agile methodology?
A) Rigidity
B) Iterative development
C) Sequential phases
D) No user involvement

5) What is the primary goal of software testing?
A) To write code
B) To find and fix bugs
C) To design the software
D) To manage the project

6) What is software testing?
A) The process of finding bugs in software
B) The process of ensuring software meets requirements and works correctly
C) The process of writing code
D) The process of documenting software features

7) Which of the following is a non-functional requirement?
A) User login functionality
B) System security
C) Payment processing
D) Report generation

8) Which of the following is an example of a high-level programming language?
A) Assembly
B) C++
C) Machine code
D) Binary

9) Which of the following is a benefit of using design patterns in software engineering?
A) Slower development time
B) Increased code complexity
C) Reusability of code
D) Less readability

10) In the context of software engineering, what does "refactoring" mean?
A) Adding new features
B) Rewriting the code from scratch
C) Improving the internal structure of code without changing its external behavior
D) Removing bugs

11) What is "scope creep" in software engineering?
A) An increase in software bugs
B) Uncontrolled changes or continuous growth in a project's scope
C) Reduction in project budget
D) Early project completion

12) What is the main advantage of the Spiral model in software engineering?
A) Rigid phase order
B) High risk management
C) Minimal user involvement
D) Low cost