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Total No. of Pages : 02

Total No. of Questions : 07

BCA (Sem-4)
SOFTWARE ENGINEERING
Subject Code : UGCA1921
M.Code : 79725
Date of Examination : 11-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. Write briefly :

- a. Why is software engineering essential in the development of complex software systems?
- b. How do preliminary design activities differ from detailed design activities in software engineering?
- c. What is software testing, and why is it a crucial step in the software development process?
- d. Why is risk management an important aspect of software engineering processes?
- e. What is the primary role of a system analyst in the software development process?
- f. What is formal requirement specification, and when is it typically used in software engineering?
- g. Name one commonly used software cost estimation model and describe its key components.
- h. What is software design, and why is it a critical phase in the software development process?

- i. How does object oriented design differ from function-oriented design in terms of its approach to modeling and structuring software systems?
- j. What is the purpose of using metrics and indicators in software development and testing?

SECTION-B

- 2. *The Unified Process (UP) is a complex and comprehensive software development framework.* Describe the key principles and phases of UP, and provide a real-world example of a project where UP could be effectively applied, highlighting its benefits and challenges.
- 3. *Software cost estimation is a critical yet challenging aspect of project management.* Explain the various techniques and models used for software cost estimation, their strengths and weaknesses, and provide a comprehensive case study demonstrating the application of one of these methods in a real world software project.
- 4. Explain the key metrics used to assess the quality of requirement and design documents, and describe how they can lead to improved project outcomes. Discuss the challenges and limitations of using these metrics.
- 5. *Software design encompasses various activities from high-level architectural decisions to detailed component designs.* Describe the typical phases and activities involved in software design, highlighting their interdependencies and the challenges that may arise in the process.
- 6. *In the context of object-oriented design, explore the principles of encapsulation, inheritance, and polymorphism.* Provide examples that demonstrate how these principles promote modularity, reusability, and maintainability in software design. Additionally, discuss potential pitfalls and misconceptions that designers should be aware of when applying these principles.
- 7. *Software testing is a critical phase in the software development process.* Discuss the various types of software testing, their purposes and the challenges faced during testing. How do testing metrics help in measuring the effectiveness of the testing process and what role do they play in ensuring software quality?

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.