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Reg. No. : .....

Code No. : 10507 E

Sub. Code : CMCS 62

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

Sixth Semester

Computer Science - Core

SOFTWARE ENGINEERING AND TESTING

(For those who joined in July 2021-2022)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer:

1. Software engineering emerged from
  - (a) Art form
  - (b) Business management
  - (c) Electrical engineering
  - (d) Civil engineering



Which software development model emphasizes iterative development cycles?

- (a) Waterfall model
- (b) Rapid Application Development (RAD)
- (c) Spiral model
- (d) Evolutionary model

Responsibilities of a Software project manager include

- (a) Coding software applications
- (b) Project planning and estimation
- (c) Hardware troubleshooting
- (d) Marketing software products

Requirements gathering and analysis involve

- (a) Developing software prototypes
- (b) Understanding customer needs
- (c) Writing code documentation
- (d) conducting system testing

A good software design is characterized by

- (a) complexity and redundancy
- (b) Simplicity and modularity
- (c) Rigidity and inflexibility
- (d) Lack of documentation



6. Structured analysis involves
  - (a) Developing detailed design specifications
  - (b) Identifying functional requirements
  - (c) Creating data flow diagrams
  - (d) Coding software algorithms
7. Black-box testing involves
  - (a) Testing internal code structures
  - (b) Testing software functionality without knowledge of internal code
  - (c) Testing software performance under heavy load
  - (d) Testing user interface components
8. Characteristics of a good user interface include
  - (a) Complexity and clutter
  - (b) Consistency and responsiveness
  - (c) Limited functionality
  - (d) Lack of user feedback
9. Software reliability is primarily concerned with
  - (a) The probability of software failure
  - (b) The speed of software execution
  - (c) The size of software documentation
  - (d) The number of software features



10. ISO 9000 certification is related to
- (a) Software reliability
  - (b) Software quality management
  - (c) Software maintenance
  - (d) Software development methodologies

PART B — ( $5 \times 5 = 25$  marks)

Answer ALL questions; choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain the concept of waterfall model, prototyping model, and evolutionary mode.

Or

- (b) Describe the principles and working of RAD and the Spiral model.

12. (a) Explain the key responsibilities of a software project manager.

Or

- (b) Briefly discuss the importance of functional requirements and their categorization in the SRS document.



13. (a) Explain the process of function-oriented software design.

Or

- (b) Discuss the characteristics of a good software design.

14. (a) Define user interface design. Discuss the importance of usability testing in interface design.

Or

- (b) Describe the fundamentals of components-based GUI development, advantages and limitations of using components in GUI development.

15. (a) Explain about software reliability. How does software reliability differ from hardware reliability?

Or

- (b) Discuss the importance of software quality management.



PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

6. (a) Briefly describe the impact of object-oriented design on modern software engineering practices.

Or

- (b) Analyze the strengths and weaknesses of Waterfall model. How does each model address the various phases of software development?

7. (a) Discuss the role of project planning in software project management.

Or

- (b) Briefly describe the process of requirements gathering and analysis in detail.

8. (a) Compare and contrast function-orientated software design with object-oriented design. Discuss their respective advantages and limitations.

Or

- (b) Describe the process of structured analysis and structured design in detail.



19. (a) Give detailed note on coding process in software development.

Or

- (b) Compare and contrast black-box testing and white-box testing.

20. (a) Describe the SEI Capability Maturity Model (CMM) and its levels. How does the CMM framework help organizations improve their software development processes?

Or

- (b) Explain the characteristics, challenges of software maintenance and importance of software evolution.
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