



## BRAINWARE UNIVERSITY

Course –MCA

Software Engineering (MCA403)

(Semester – 4)

**Time allotted: 3 Hours**

**Full Marks : 70**

[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 Questions)

10 x 1 = 10

1. *Choose the correct alternative from the following*

(i) SRS document is for

- |                                 |                                    |
|---------------------------------|------------------------------------|
| a. Defining the system          | b. Designing the system            |
| c. Mentioning user expectations | d. Specifying system's requirement |

(ii) For frequently enhancing requirement, which of the following SDLC model is suitable

- |                       |                    |
|-----------------------|--------------------|
| a. Waterfall model    | b. Spiral model    |
| c. Evolutionary model | d. Prototype model |

(iii) Equivalence class partitioning is related to

- |                       |                      |
|-----------------------|----------------------|
| a. Structural Testing | b. Black box testing |
| c. Mutation Testing   | d. All the them      |

(iv) Site for beta testing is

- |                        |                      |
|------------------------|----------------------|
| a. Software company    | b. Client's site     |
| c. Installation's site | d. None of the above |

(v) As the reliability increases, failure intensity

- |              |                      |
|--------------|----------------------|
| a. Decreases | b. Increases         |
| c. No effect | d. None of the above |

(vi) What is Prototype?

- |                    |                                  |
|--------------------|----------------------------------|
| a. A working model | b. Mini-model of proposed system |
| c. An interface    | d. Mini-model of existing system |

- (vii) Module testing is carried out under
- a. Alpha testing
  - b. Black box testing
  - c. Mutation testing
  - d. White box testing
- (viii) Which phase among the following SDLC phases is most responsible for failure of any project?
- a. Testing
  - b. Designing
  - c. Coding
  - d. Requirement Analysis
- (ix) Which of the following phase is not available in the SDLC?
- a. Coding
  - b. Testing
  - c. Maintenance
  - d. Abstraction
- (x) SDLC stands for
- a. Software Design Life Cycle
  - b. System Development Life cycle
  - c. System Design Life Cycle
  - d. Software Development Life Cycle

### Group – B

(Short Answer Type Questions)

3 x 5 = 15

Answer any *three* from the following

2. Explain top down designing approach and bottom designing approach for any software development. [5]
3. Explain data flow diagram (DFD). Mention different DFD components with block diagram. [5]
4. Explain code walk throughs and code inspection techniques briefly. [5]
5. Explain functional testing and structural testing briefly [5]
6. Explain alpha testing and beta testing process [5]

### Group – C

(Long Answer Type Questions)

3 x 15 = 45

Answer any *three* from the following

7. (a) What do you mean by Abstraction and Decomposition? How Abstraction and Decomposition are used to reduce the complexity of Software during its development? [7]
- (b) Mention different phases of SDLC Model and explain each phase. [8]

8. (a) What do you mean by cohesion in software modularization? What are different types of cohesion? Explain each of them. [10]  
(b) Explain structured design and function oriented design [5]
9. (a) Define Coupling with respect to software modularization. What are different levels of Coupling? Explain each of them. [10]  
(b) Explain intermediate COCOMO model and complete COCOMO model. [5]
10. Assume that you have to design and develop a library management system. Mention functional and non functional requirement. Also draw Use Case diagram, Class diagram, Sequence diagram, State Chart diagram and Collaborative diagram for this software. [15]
11. (a) Explain the architecture of modern CASE environment with appropriate figure. [5]  
(b) Explain Software Reverse Engineering and Software Re-engineering process in software maintenance with appropriate figures. [5]  
(c) Mention basic issues that must be clearly understood for starting any reuse program during software reuse. [5]