

**MASTER OF COMPUTER APPLICATION**  
**Third Semester (Repeat)**  
**SOFTWARE ENGINEERING**  
**(MCA - 12)**

**Duration: 3Hrs.**

**Full Marks: 70**

Part-A (Objective) =20  
Part-B (Descriptive) =50

**(PART-B: Descriptive)**

**Duration: 2 hrs. 40 mins.**

**Marks: 50**

**Answer any four from Question no. 2 to 8**  
**Question no. 1 is compulsory.**

1. Explain the different types of Empirical Estimation Model. [10]
2. What do you mean by layered technology? Explain in details. [10]
3. Describe the white box and black box testing. [5+5=10]
4. Explain Spiral Model with a diagram. Describe its advantages and disadvantages. [6+4=10]
5. Write short notes on *any two*- [5×2=10]
  - a. Unit testing
  - b. Integration testing
  - c. System testing
6. Describe the software reliability metrics. [10]
7. Describe cohesion & coupling with the help of diagrams. [5+5=10]
8. Write in brief about ISO 9000. Compare ISO 9000 and SEI/CMM model. [5+5=10]

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**Duration: 20 minutes**

**Marks – 20**

**(PART A - Objective Type)**

**I. Choose the correct answer:**

**1×20=20**

1. RAD is the abbreviation of-
  - a. Rapid Application Design
  - b. Rapid Application Development
  - c. Random Application Design
  - d. Random Application Development
  
2. Relationship between entities are-
  - a. 1:1, 1:m, m:n
  - b. 1:1, m:1, 1:m
  - c. 1:1, m:m, m:n
  - d. none
  
3. In UML, the filled diamond drawn at one end is the symbolic representation of-
  - a. Aggregation
  - b. Composition
  - c. Inheritance
  - d. Dependency
  
4. Risk analysis is one of the major region of \_\_\_\_\_ model.
  - a. RAD
  - b. Spiral
  - b. CBSE
  - d. Incremental
  
5. Glass box testing is \_\_\_\_\_ and behavioral testing is \_\_\_\_\_.
  - a. Black box, white box
  - b. White box, black box
  - c. White box, Alpha box
  - d. Alpha testing, beta testing
  
6. One of the most important advantages of using \_\_\_\_\_ metric is that it can be used to easily estimate the size of a software product directly from the problem specification.
  - a. LOC
  - b. ROCOF
  - c. Function point metric
  - d. Feature point metric

7. \_\_\_\_\_ is a set of application programs that are built by software engineers.
- a. Hardware
  - b. Software
  - c. Firmware
  - d. Models
8. A module having high \_\_\_\_\_ and low \_\_\_\_\_ is said to be functionally independent of other modules.
- a. Coupling, cohesion
  - b. Cohesion, coupling
  - c. Scope of reuse, error isolation
  - d. Understandability, error isolation
9. Basic COCOMO estimation model is given by the following expression of effort, where-
- a.  $\text{Effort} = a_1 \times (\text{KLOC})^{b_1}$  month
  - b.  $\text{Effort} = a_1 \times (\text{KLOC})^{a_1}$  month
  - c.  $\text{Effort} = b_1 \times (\text{TDEV})^{b_2}$  PM
  - d.  $\text{Effort} = a_1 \times (\text{KLOC})^{a_2}$  PM
10. Data objects are connected to one another in different ways is called-
- a. Relationships
  - b. Entity
  - c. Cardinality
  - d. Attributes
11. \_\_\_\_\_ provides the software engineer with the ability to automate manual activities and to improve engineering insight and also ensure that quality is designed in before the product is built.
- a. CBSE
  - b. CASE
  - c. Both
  - d. None of these
12. "Are we building the right product?" is \_\_\_\_\_ and "Are we building the product right?" is \_\_\_\_\_.
- a. Verification, validation
  - b. Validation, verification
  - c. Both
  - d. Alpha testing, beta testing
13. \_\_\_\_\_ is software metric that provides a quantitative measure of the logical complexity of a program.
- a. Basis path testing
  - b. Cyclomatic complexity
  - c. White box testing
  - d. Black box testing

14. The \_\_\_\_\_ is an incremental development process model that emphasizes an extremely short development cycle with “high speed” adaptation using component based construction.
- a. RAD                      b. Spiral                      c. CBSE                      d. Incremental
15. The \_\_\_\_\_ of software component is “a description of what the component does” and \_\_\_\_\_ places the reusable software component within its domain of applicability.
- a. Concept, content                      b. Context, content  
c. Content, context                      d. Concept, context
16. Software is a \_\_\_\_\_ rather than \_\_\_\_\_.
- a. Physical, logical                      b. Logical, physical  
c. Both                      d. None
17. \_\_\_\_\_ is concerned with the practicalities of developing and delivering useful software.
- a. System                      b. System Software  
c. Software Engineering                      d. Software
18. In \_\_\_\_\_ - testing, the entire software system is tested.
- a. Unit                      b. Integration                      c. System                      d. Black box
19. The \_\_\_\_\_ is a direct outgrowth of modularity and the concept of abstraction and information hiding.
- a. Cohesion                      b. Coupling  
c. Functional independence                      d. Data structure
20. The \_\_\_\_\_ model suggests a systematic, sequential approach to software development that begins at the system level and progresses through analysis, design, coding, testing and support.
- a. Linear sequential                      b. Classic life cycle  
c. Waterfall                      d. All of them