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Paper Code : BCAC403/CS 403 Software Engineering
UPID : 4000104

Time Allotted : 3 Hours   *Full Marks :70*

The Figures in the margin indicate full marks.
Candidate are required to give their answers in their own words as far as practicable

Group-A (Very Short Answer Type Question)

1. Answer *any ten* of the following :   [1 x 10 = 10]
   - (I) What is the objective of software testing?
   - (II) What are McCall's Quality Factors
   - (III) What is a baseline in software configuration management?
   - (IV) What does the acronym SDLC stand for?
   - (V) What does DRE stand for in software quality metrics?
   - (VI) Which OOP principle allows classes to inherit properties and behaviors from parent classes?
   - (VII) What is the formula of basic COCOMO model?
   - (VIII) What is the primary benefit of a layered architecture?
   - (IX) What is the focus of component-level design for a web application?
   - (X) What is cyclomatic complexity in software testing?
   - (XI) What are the primary goals of Software Quality Assurance (SQA), and what are some common metrics used to assess software quality?
   - (XII) What is the main advantage of the spiral model over the waterfall model?

Group-B (Short Answer Type Question)

Answer *any three* of the following :   [5 x 3 = 15]

2. What is Quality assurance? Explain some elements of quality assurance? [5]
3. What is Software Configuration Management (SCM)? Explain Version Control and Change Control. [5]
4. Differentiate between Linear Sequential Model and Prototype Model. [5]
5. Explain Defect Removal Efficiency (DRE) in software quality. [5]
6. What are the key elements of Project Scheduling? [5]

Group-C (Long Answer Type Question)

Answer *any three* of the following :   [15 x 3 = 45]

7. (a) What is software engineering? [2]
   (b) Write the impact of software in modern life? [3]
   (c) What is SDLC? [2]
   (d) Discuss the phases of SDLC. [7]
   (e) The incremental model is a result of combination of elements of which two models? [1]
8. Discuss different software measurement techniques, including Function-Oriented Metrics and Object-Oriented Metrics. [15]
9. (a) Discuss the importance of messages and services in object-oriented design. [10]
   (b) What are the essential elements of an object model? [5]
10. (a) What is the COCOMO model, and how does it help in software project estimation? [2]
    (b) Explain how estimation for object-oriented projects differs from traditional estimation methods. [3]
    (c) Discuss the concept of time-line charts in project scheduling. [5]
    (d) What is a "Make/Buy" decision in project planning? Explain how to create a decision tree for this decision-making process? [3]
    (e) How does tracking the schedule help in ensuring the success of a software project? [2]
11. (a) Explain the software life cycle model that incorporates risk factors. [5]
    (b) Draw a suitable diagram. [5]

(c) Compare between Agile and Waterfall model. [5]

*** END OF PAPER ***