Enrollment No.....................................

Faculty of Science
End Sem Examination Dec-2023
BC3CO50 Software Engineering

Programme: B.Sc.   Branch/Specialisation: Computer Science

Duration: 3 Hrs.   **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1
i. Which one of the following is not a phase of prototyping model? **1**
(a) Quick design   (b) Coding
(c) Prototype refinement   (d) Engineer product

ii. RAD stands for- **1**
(a) Relative Application Development
(b) Rapid Application Development
(c) Rapid Application Document
(d) None of these

iii. Which one of the following is not a step of requirement engineering? **1**
(a) Elicitation   (b) Design   (c) Analysis   (d) Documentation

iv. "Consider a system where, a heat sensor detects an intrusion and alerts the security company." What kind of a requirement the system is providing? **1**
(a) Functional   (b) Non-functional
(c) Known requirement   (d) None of these

v. Which of these is correct with the context of cohesion- **1**
(a) Cohesion is least in modules that have a single clear, logically independent responsibility or role
(b) One way to increase cohesion is to build a module hierarchy reflecting the level of abstraction in a program
(c) Cohesion cannot be achieved by forming modules that implement data types
(d) All of these

vi. In User Interface Design, tools are used-   **1**
(a) To make prototype and implement the design model
(b) To get qualitative results
(c) Both (a) and (b)
(d) None of these

vii. Software evolution does not comprise-   **1**
(a) Development activities
(b) Negotiating with client
(c) Maintenance activities
(d) Re-engineering activities

viii. Program modularization and Source code translation are the activities   **1**
of_____.
(a) Forward engineering   (b) Reverse engineering
(c) Reengineering   (d) Both (b) and (c)

ix. _____is the process to ensure whether the product that is developed   **1**
is right or not.
(a) Validation   (b) Verification
(c) Both (a) and (b)   (d) None of these

x. In which environment, the beta testing is performed-   **1**
(a) User's end
(b) Developer's end
(c) User's and developer's end
(d) None of these

Q.2 i. What is software engineering? Also explain principle of software   **2**
engineering.
ii. Differentiate between software product and software process.   **2**
iii. Explain following terms: **6**
(a) Layered technology   (b) Process framework
(c) Umbrella activity
OR iv. What is spiral model? When we used this model? Also explain   **6**
advantage and disadvantage of it.

Q.3 i. Differentiate between functional and non-functional requirements.   **4**
ii. What is requirement engineering? Explain requirement engineering   **6**
process in detail.
OR iii. Draw the activity diagram, use case diagram and class diagram of   **6**
library management system.

Q.4 i. What is UID? Also explain its golden rules.   **4**
ii. Explain types of cohesion and coupling.   **6**
OR iii. Define software design. What potential difference it has when   **6**
compared to analysis?

Q.5 i. What is the rapid application development method in agile?   **4**
ii. What is the purpose of software evolution? Also explain different steps   **6**
of software evolution.
OR iii. What do you mean by software maintenance? Also explain types of   **6**
software maintenance.

Q.6 Attempt any two:
i. Discuss in detail about verification and validation process.   **5**
ii. Explain about effort estimation techniques.   **5**
iii. Compare the black box testing and white box testing with an example.   **5**

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Scheme of Marking

Software Engineering-BC3CO50(T)

Q.1 i)   (b) Coding   **1**
    ii) (b) Rapid Application Development   **1**
    iii) (b) design   **1**
    iv) (a) Functional   **1**
    v)   (b) One way to increase cohesion is to build a module hierarchy   **1**
         reflecting the level of abstraction in a program
    vi) (a) To make prototype and implement the design model   **1**
    vii) (b) Negotiating with client   **1**
    viii)(c) Reengineering   **1**
    ix) (b) Verification   **1**
    x)   (a)User's end   **1**

Q.2 i.   Software engineering definition   1 mark   **2**
         principle of software engineering.   1 mark
    ii. Differentiate between software product and software process.   **2**
         1 mark for each difference   (1 mark *2)
    iii. Explain following terms: 2 marks for each (2 marks * 3) **6**
OR iv. Spiral model   2 marks   **6**
         Usage   1 mark
         Advantage   1.5 marks
         Disadvantage   1.5 marks

Q.3 i.   Differentiate between functional and non-functional requirements. **4**
         mark for each difference   (1 mark *4)
    ii. Requirement engineering definition   2 marks   **6**
         Requirement engineering process   4 marks
OR iii. Activity diagram   2 marks   **6**
         Use case diagram   2 marks
         Class diagram   2 marks
Q.4 i.   Definition of UID   2 marks   **4**
         Golden rules   2 marks
    ii. Types of cohesion   3 marks   **6**
         Types of coupling.   3 marks

OR iii. Definition of software design   2 marks   **6**
         Difference it has when compared to analysis   4 marks

Q.5 i.   Rapid application development method in agile   **4**
    ii. Purpose of software evolution   2 marks   **6**
         Different steps of software evolution   4 marks
OR iii. Definition of software maintenance   2 marks   **6**
         Types of software maintenance   4 marks

Q.6   Attempt any two:
    i.   Discussion of verification and validation process.   **5**
    ii. Explanation of effort estimation techniques.   **5**
    iii. Comparison the black box testing and white box testing   **5**
         1 mark for each comparison (1 mark * 4)   4 marks
         Example.   1 mark

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