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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

MCA (Integrated)

SEM: IV - THEORY EXAMINATION (2024 - 2025)

Subject: Software Engineering & Design

Time: 3 Hours   Max. Marks: 100

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

1. This Question paper comprises of three Sections -A, B, & C. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.

2. Maximum marks for each question are indicated on right -hand side of each question.

3. Illustrate your answers with neat sketches wherever necessary.

4. Assume suitable data if necessary.

5. Preferably, write the answers in sequential order.

6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION-A   20

1. Attempt all parts:-

1-a.   In which phase of SDLC, actual programming of software is done? (CO1, K2)   1

     (a)   development and documentation

     (b)   designing

     (c)   analysis

     (d)   testing

1-b.   Agile software development is based on which of the following type? (CO1, K2)   1

     (a)   iterative development

     (b)   incremental development

     (c)   iterative and incremental development

     (d)   None of the above

1-c.   Use-Case Diagram is used for? (CO2, K2)   1

     (a)   analysis

     (b)   modeling

     (c)   Testing Software Process

     (d)   documentation

1-d.   _____ is the first step of requirement elicitation. (CO2, K2)   1

     (a)   Identifying Stakeholder

     (b)   Listing out Requirements

     (c)   Requirements Gathering

       (d)   All of the mentioned

1-e.   _____ is the best type of module coupling. (CO3, K2)   1

    (a)   Control Coupling

    (b)   Stamp Coupling

    (c)   Data Coupling

    (d)   Content Coupling

1-f.   In Design phase, which is the primary area of concern? (CO3, K2)   1

    (a)   Architecture

    (b)   Data

    (c)   Interface

    (d)   All of the mentioned

1-g.   Beta testing is done at_____. (CO4, K2)   1

    (a)   User's end

    (b)   Developer's end

    (c)   User's & Developer's end

    (d)   None of the mentioned

1-h.   Exhaustive testing is _____. (CO4, K2)   1

    (a)   always possible

    (b)   practically possible

    (c)   impractical but possible

    (d)   impractical and impossible

1-i.   Legacy systems means_____. (CO5, K2)   1

    (a)   new systems

    (b)   old systems

    (c)   under-developed systems

    (d)   none of the mentioned

1-j.   The process of transforming a model into source code is known as _____. (CO5, K2)   1

    (a)   Forward engineering

    (b)   Reverse engineering

    (c)   Re-engineering

    (d)   Reconstructing

2. Attempt all parts:-

2.a.   Explain the merits of Incremental model. (CO1, K2)   2

2.b.   Define Brainstorming Sessions in requirement elicitation. (CO2, K2)   2

2.c.   Explain Cohesion in software design. (CO3, K2)   2

2.d.   Distinguish between alpha and beta testing. (CO4, K2)   2

2.e.   Explain the activities of software maintenance. (CO5, K2)   2

SECTION-B   30

3. Answer any <u>five</u> of the following:-

3-a.   Differentiate between Iterative and Incremental model in software development   6
           process. (CO1, K2)

3-b.   Discuss the prototyping model in detail. (CO1, K2)   6

3-c.   Illustrate different types of requirement analysis model with example. (CO2, K2)   6

3-d.   Define the purpose of requirement documentation. Explain in detail. (CO2, K2)   6

3-e.   Define the concept of cohesion and coupling. State the difference. (CO3, K2)   6

3.f.   Justify the importance of testing process. (CO4, K2)   6

3.g.   Differentiate between forward and reverse engineering. (CO5, K2)   6

SECTION-C   50

4. Answer any <u>one</u> of the following:-

4-a.   Discuss the reasons of software crisis in detail. (CO1, K2)   10

4-b.   Explain the different phases of SDLC with diagram. (CO1, K2)   10

5. Answer any <u>one</u> of the following:-

5-a.   Draw a clean diagram of requirement engineering process. (CO2, K2)   10

5-b.   Explain Software Quality Assurance. List out the advantages of Software Quality   10
           Assurance. (CO2, K2)

6. Answer any <u>one</u> of the following:-

6-a.   Differentiate between function-oriented design and object-oriented design. (CO3,   10
           K2)

6-b.   Discuss various types of coupling with example. (CO3, K2)   10

7. Answer any <u>one</u> of the following:-

7-a.   Compare black-box testing and white-box testing in detail. (CO4, K2)   10

7-b.   Explain the following: (CO4, K2)   10
           (i) Review
           (ii) Code Inspection
           (iii) Walkthrough

8. Answer any <u>one</u> of the following:-

8-a.   Write short notes on following: (CO5, K2)   10
           (i) COCOMO Model
           (ii) Risk Analysis
           (iii) Configuration Management

8-b.   Write short notes on the following: (CO5, K2)   10
           (i) CASE Tools
           (ii) Re-Engineering
           (iii) Cost of Maintenance