Printed Page:- 03 Subject Code:- AMICSE0702

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

M.Tech. (Integrated)

SEM: VII - THEORY EXAMINATION (2024 - 2025)

Subject: Software Engineering and 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. The agile software development model is built based on _____.(CO1,K1) 1

(a) Linear Development

(b) Incremental Development

(c) Iterative Development

(d) Both Incremental and Iterative Development

1-b. The major drawback of RAD model is _____.(CO1,K2) 1

(a) It requires highly skilled developers/designers.

(b) It necessitates customer feedbacks.

(c) It increases the component reusability.

(d) Both (a) & (c)

1-c. FAST stands for. (CO2,K1) 1

(a) Facilitated Application Specification Technique

(b) Functional Application Specification Technique

(c) Fast Application Specification Technique

(d) None of the above

1-d. The Cleanroom philosophy was proposed by _____(CO2,K2) 1

(a) Linger

(b) Mills

(c) Dyer

(d) All of the Mentioned

1-e. The worst type of coupling is.(CO3,K2) 1

(a) Content
(b) Common
(c) External
(d) Data Cupling

1-f. The most desirable form of cohesion is. (CO3,K2) 1

(a) Logical cohesion
(b) Procedural cohesion
(c) Functional cohesion
(d) Temporal cohesion

1-g. Boundary value analysis belong to (CO4,K2) 1

(a) White Box Testing
(b) Black Box Testing
(c) White Box & Black Box Testing
(d) None of the mentioned

1-h. Alpha and Beta testing techniques are related to:(CO4,K2) 1

(a) System testing
(b) Unit testing
(c) Acceptance testing
(d) Integration Testing

1-i. Selective retest techniques may be more economical than the “retest-all” technique. How many selective retest techniques are there.(CO5,K2) 1

(a) two
(b) three
(c) four
(d) five

1-j. Maintenance is classified into how many categories. (CO5,K2) 1

(a) two
(b) three
(c) four
(d) five

2. Attempt all parts:-

2.a. Explain Agile Methodology and define the role of Scrum Artifacts, Scrum Roles and Scrum Events(CO1,K2) 2

2.b. List out the phases of requirement engineering.(CO2,K3) 2

2.c. Differentiate between flow chart and activity diagram.(CO3,K4) 2

2.d. Define White-box testing? (CO4,K2) 2

2.e.	Explain business goal of re-engineering.(CO5,K2)	2

SECTION-B 30

3. Answer any five of the following:-

3-a.	Explain spiral model in detail with example.(CO1,K2)	6
3-b.	Differentiate between Waterfall Model and Spiral Model.(CO1,K4)	6
3-c.	Define SRS Document and explain IEEE Standards for SRS.(CO2,K3)	6
3-d.	Compare Use Case Diagram and Data Flow Diagrams for software development. (CO2,K2)	6
3.e.	Define Top-Down and Bottom-Up Design of software design. (CO3,K2)	6
3.f.	Explain the term testbed. Write the difference between Test Stub and Test Driver.(CO4,K3)	6
3.g.	Define Cyclomatic Complexity Measures and Control Flow Graphs with example.(CO5,K4)	6

SECTION-C 50

4. Answer any one of the following:-

4-a.	Explain in detail about Spiral Model with a neat diagram.(CO1,K2)	10
4-b.	Explain in detail about Evolutionary process model with a neat diagram.(CO1,K2)	10

5. Answer any one of the following:-

5-a.	Draw and explain Use-Case diagram for Covid Vaccination system for all possible use cases. (CO2,K3)	10
5-b.	Define data dictionary and decision table? Explain with an example. (CO2,K2)	10

6. Answer any one of the following:-

6-a.	Design and explain class diagram for COVID Vaccinations System. (CO3,K4)	10
6-b.	Define the following object oriented features Abstraction, object, classification, inheritance, encapsulation.(CO3,K2)	10

7. Answer any one of the following:-

7-a.	Define: a) Bottom-up testing b) Test Stubs c) Test Oracle d) CMM e) Acceptance testing (CO4,K3)	10
7-b.	Write a note on: (i) Black box testing (ii) Regression testing (iii) White box testing (iv) Integration testing (CO4,K2)	10

8. Answer any one of the following:-

8-a.	Explain how cost is estimated in the COCOMO estimation technique: cost, effort, duration, size. Represent the precedence ordering among these activities using a task network diagram.(CO5,K3)	10
8-b.	Explain Halstead's volume metric represent conceptually. How according to Halstead is the effort dependent on program volume. (CO5,K3)	10