Printed page: 04 **Subject Code: ACSE0603 /ACSEH0603**

Roll No: | | | | | | | | | | | | | |

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: VI- THEORY EXAMINATION (2023-2024)

Subject : SOFTWARE ENGINEERING

Time: 3 Hours **Max. Marks:100**

General Instructions:

IMP: Verify that you have received question paper with 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. Mention the software development paradigm which emphasizes incremental and iterative development : (CO1) 1

(a) Waterfall model

(b) Spiral model

(c) Agile model

(d) V-model

1-b. Software consists of _____ (CO1) 1

(a) Set of instructions + operating procedures

(b) Programs + documentation + operating procedures

(c) Programs + hardware manuals

(d) Set of programs

1-c. Primary goal of requirements engineering is : (CO2) 1

(a) To design the software architecture

(b) To gather and document software requirements

(c) To perform code optimization

(d) To test the software product

1-d. If every requirement stated in the Software Requirement Specification (SRS) has only one interpretation, SRS is said to be correct _____ . (CO2) 1

(a) Unambiguous

(b) Consistent

(c) Verifiable

(d) None of the above

1-e. Purpose of Unified Modeling Language in software engineering is to : (CO3) 1

(a) To write code directly

(b) To document software designs using standardized diagrams

(c) To execute test cases

(d) To manage project budgets

1-f. Design that identifies the software as a system with many components interacting with each other is - (CO3) 1

(a) Architectural design

(b) High-level design

(c) Detailed design

(d) Both B & C

1-g. Out of below which of the following is not a software testing technique : (CO4) 1

(a) White-box testing

(b) Black-box testing

(c) Grey-box testing

(d) Blue-box testing

1-h. One of the fault base testing techniques is _____ . (CO4) 1

(a) Unit Testing

(b) Beta Testing

(c) Stress Testing

(d) Mutation Testing

1-i. Primary role of a Software Configuration Management (SCM) system is : (CO5) 1

(a) To manage project schedules

(b) To track changes in software artifacts

(c) To execute test cases

(d) To design user interfaces

1-j. COCOMO stands for _____ .(CO5) 1

(a) COnsumed COst MOdel

(b) COnstructive COst MOdel

(c) COmmon COntrol MOdel

(d) COmposition COst MOdel

2. Attempt all parts:-

2.a.	Describe the main phases of software development life cycle (SDLC). (CO1)	2
2.b.	Mention software requirement specifications (SRS). (CO2)	2
2.c.	Define Object-Oriented Programming (OOP). (CO3)	2
2.d.	Define Unit testing. (CO4)	2
2.e.	Explain the concept of software maintenance. (CO5)	2

SECTION – B 30

3. Answer any five of the following-

3-a.	Explain in brief about what the significance does a life cycle model hold during the development of a large software product. (CO1)	6
3-b.	Discuss the prototype model. What is the effect of designing a prototype on the overall cost of the software project. (CO1)	6
3-c.	Elaborate Software Requirement Specification document. Why is SRS document also known as contract document? List the properties of a good SRS document. (CO2)	6
3-d.	Explain the role of requirements engineering in software development. Discuss the challenges associated with requirements elicitation. (CO2)	6
3-e.	Define software testing. Differentiate between white-box testing and black-box testing.(CO3)	6
3-f.	Describe the Unified Modelling Language (UML) and its various diagram types.(CO4)	6
3-g.	Describe various categories of maintenance. (CO5)	6

SECTION – C 50

4. Answer any one of the following-

4-a.	Compare and contrast between conventional engineering process and software engineering process. Explain with a real life example. (CO1)	10
4-b.	Elaborate Spiral model in software engineering. Explain the key advantages associated with implementing the Spiral model in software development projects. (CO1)	10

5. Answer any one of the following-

5-a.	Discuss the critical factors that should be considered during a feasibility study in software engineering. Write the primary techniques used in requirement analysis in software engineering, for the successful development of software products? (CO2)	10
5-b.	Draw a DFD for result preparation automation system of B.Tech Course of any University. Clearly describe the working of that system. Also, mention assumptions made by you. (CO2)	10

6. Answer any one of the following-

6-a.	Discuss the following in software design process i) Top-Down design ii) Bottom-Up design (CO3)	10
6-b.	Explain the terms coupling and cohesion. What roles they play in software design. Describe all types of cohesion in detail. (CO3)	10

Subject Code: ACSE0603

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

7-a. Explain the differences between drivers and stub modules in context of integration and unit testing of software product. Mention the essence of stubs and drivers modules. Also, differentiate between alpha and beta testing. (CO4) 10

7-b. Differentiate between black box and white box testing. Mention advantages and disadvantages of each type of testing. (CO4) 10

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

8-a. Define Maintenance in software engineering. Describe various software maintenance models with diagram.(CO5) 10

8-b. Define cyclomatic complexity. Explain different ways to compute cyclomatic complexity. Find Cyclomatic complexity of the given control flow graph. (CO5) 10