Printed Page:- 04 **Subject Code:- AIT0401**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)
B.Tech
SEM: IV - THEORY EXAMINATION (2023 - 2024)
Subject: Software Engineering

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 major drawback of the Spiral Model : (CO1) 1

(a) Higher amount of risk analysis
(b) Doesn't work well for smaller projects
(c) Additional functionalities are added later on
(d) Strong approval and documentation control

1-b. Study of an existing system refer to :(CO1) 1

(a) Details of DFD
(b) Feasibility Study
(c) System Analysis
(d) System Planning

1-c. Attributes of good software is/are _____ (CO2) 1

(a) Development
(b) Maintainability & functionality
(c) Functionality
(d) Maintainability

1-d. It is the process in which developers discuss with the client and end users and know their expectations from the software and later organize them. (CO2) 1

(a) Requirements gathering
(b) Organizing Requirements

(c) Negotiation & discussion

(d) Documentation

1-e. Notations for the Use case Diagrams are : (CO3) 1

(a) Use case

(b) Actor

(c) Prototype

(d) Use case and Actor

1-f. Select the one which is not a strategy for design : (CO3) 1

(a) Bottom up design

(b) Embedded design

(c) Top down design

(d) Hybrid design

1-g. A test suite is: (CO4) 1

(a) Set of test cases

(b) Set of inputs

(c) Set of outputs

(d) Set of logical files

1-h. Site for Alpha testing is: (CO4) 1

(a) A production environment

(b) A development environment

(c) A staging environment

(d) A testing environment

1-i. In how many categories software Maintenance is classified - (CO5) 1

(a) 2

(b) 3

(c) 4

(d) 5

1-j. In Clean room software development (CO5) 1

(a) One system is designed as the system controller and has responsibility for managing the execution of other subsystems.

(b) Each system is named as in attribute- based identification and associated with one or more change requests.

(c) An object class inheritance diagram, how entities have common characteristics.

(d) The objective is to develop zero-defect software.

2. Attempt all parts:-

2.a. Explain the system planning and designing phase of the Software Development Life Cycle (SDLC). (CO1) 2

2.b. Explain how selection of stakeholder for interview session is done. (CO2) 2

2.c.	Define coupling.(CO3)	2
2.d.	Explain bottom-up testing strategy briefly. (CO4)	2
2.e.	List the steps involved in Re-Engineering. (CO5)	2

SECTION-B 30

3. Answer any five of the following:-

3-a.	Differentiate between the iterative and incremental models. (CO1)	6
3-b.	Define the main objective of a software process models with the help of a suitable example. (CO1)	6
3-c.	Draw a 0-level and 1-level DFD for a library management system. (CO2)	6
3-d.	Mention various components of use-case diagram. Explain their usage with the help of an example. (CO2)	6
3.e.	Elaborate cohesion and coupling in the context of software design. How are these concepts useful in arriving at a good design of a system. (CO3)	6
3.f.	Differentiate between Quality Control (QC) and Quality Assurance (QA). (CO4)	6
3.g.	Explain the Constructive Cost model. (CO5)	6

SECTION-C 50

4. Answer any one of the following:-

4-a.	Describe the software crisis . Explain some proactive measures that software developers and project managers can take to avoid encountering a software crisis altogether. (CO1)	10
4-b.	Explain all the phases of waterfall model with suitable diagram and compare its requirements with other models. (CO1)	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)	10
5-b.	Describe requirement engineering process in detail and its methods. (CO2)	10

6. Answer any one of the following:-

6-a.	An application has following : 10 low external input, 12 high external output, 20 low internal logical file, 15 high external interface file, 12 average external enquiry, and the value of CAF is 1.10. Calculate the unadjusted and adjusted function point count. (CO3)	10
6-b.	Draw and explain Activity diagram for Railway Ticket Reservation System. (CO3)	10

7. Answer any one of the following:-

7-a.	Discuss all the Structural testing techniques in detail. (CO4)	10
7-b.	Write a note on: (i) Black box testing (ii) Regression testing (iii) White box testing (iv) Integration testing (CO4)	10

8. Answer any one of the following:-

8-a.	List the important shortcomings of LOC for use as a software size metric for	10

carrying out project estimations. (CO5)

8-b. Explain milestone in software development. Describe how is it considered helpful to have milestone in software development. (CO5) 10