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 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.   What is the first step in the software development lifecycle? CO1   1

    (a)   System Design

    (b)   Coding

    (c)   System Testing

    (d)   Preliminary Investigation and Analysis

1-b.   What does RAD stand for? CO1   1

    (a)   Rapid Application Document

    (b)   Rapid Application Development

    (c)   Relative Application Development

    (d)   None of the above

1-c.   Requirements elicitation means CO2   1

    (a)   Gathering of requirements

    (b)   Capturing of requirements

    (c)   Understanding of requirements

    (d)   All of the above

1-d.   SRS document is for CO2   1

    (a)   "What" of a system?

    (b)   How to design the system?

    (c)   Costing and scheduling of a system

(d)   System's requirement.

1-e.   Which of the following is/are type of module cohesion? CO3   1

   (a)   Logical

   (b)   Temporal

   (c)   Control

   (d)   Stamp

1-f.   Functional cohesion means? CO3   1

   (a)   Operations are part of single functional task and are placed in same procedures

   (b)   Operations are part of single functional task and are placed in multiple procedures

   (c)   Operations are part of multiple tasks

   (d)   None of the above

1-g.   Software testing is: CO4   1

   (a)   The process of demonstrating the errors are not present

   (b)   The process of establishing confidence that a program does what it is supposed to do

   (c)   The process of executing the program to show that it is working as per specification

   (d)   The process of executing the program with the intent of finding errors

1-h.   Beta Testing is carried out by: CO4   1

   (a)   Users

   (b)   Developers

   (c)   Testers

   (d)   All of the above

1-i.   Adaptive maintenance is related to: CO5   1

   (a)   Modification of software due to failure

   (b)   Modification of software due to demand in new functionalities

   (c)   Modification of software due to increase in complexity

   (d)   Modification of software to match changes in the ever-changing environment

1-j.   Select which one is not the category of maintenance: CO5   1

   (a)   Corrective Maintenance

   (b)   Effective Maintenance

   (c)   Adaptive Maintenance

   (d)   Perfective Maintenance

2. Attempt all parts:-

2.a.   Define SDLC? CO1   2

2.b.   State Characteristics of SRS document. CO2   2

2.c.   Define sequence diagram? CO3   2

2.d.   What effect does removing a defect during the latter stage, as opposed to the initial stage, have on cost? CO4   2

| 2.e. | Select which risks are derived from the organizational environment where the software is being developed? CO5 | 2 |

SECTION-B   30

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

3-a.	Discuss Spiral Model in SDLC? What are some advantages and disadvantages of the Spiral Model? CO1	6
3-b.	"Software doesn't wear out" – Explain in detail. CO1	6
3-c.	List out the roles of Software Quality Assurance engineer? CO2	6
3-d.	Mention the various levels of capability maturity model? CO2	6
3.e.	Describe the differences between Function oriented design and Object oriented design? CO3	6
3.f.	Discuss the limitations of testing. Why do we say that complete testing is impossible? (CO4)	6
3.g.	Explain the Constructive Cost Model (COCOMO) in detail. CO5	6

SECTION-C   50

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

| 4-a. | Explain why a software system that is used in a real-world environment must change or become progressively less useful. CO1 | 10 |
| 4-b. | Explain the term prototype and under what circumstances is it beneficial to construct a prototype? Does the construction of prototype always increase the overall cost of software development? (CO1) | 10 |

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

| 5-a. | Explain Requirement Validation and verification in detail. CO2 | 10 |
| 5-b. | Explain the Types of Feasibility in brief. CO2 | 10 |

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

| 6-a. | Design and explain Sequence diagram for Phone call Management System. (CO3) | 10 |
| 6-b. | Explain modularity. Explain under modularity and over modularity in a software should be avoided. CO3 | 10 |

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

| 7-a. | Explain Boundary Value Analysis with example. CO4 | 10 |
| 7-b. | Differentiate between the white box, black box and gray box testing? (CO4) | 10 |

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

| 8-a. | List the important shortcomings of LOC for use as a software size estimations. (CO5) | 10 |
| 8-b. | Discuss various problems during maintenance. Describe some solutions. CO5 | 10 |