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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: VI - THEORY EXAMINATION (2025 - 2026)

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:-

- (1.1) Model selection is based on _____. (CO1,K2) 1
- (a) Requirements
 - (b) Development team & users
 - (c) Project type & associated risk
 - (d) All of the above
- (1.2) Arrange the following activities for making a software product by utilizing 4GT. (CO1,K2) 1
- I. Design strategy
 - II. Transformation into product
 - III. Implementation
 - IV. Requirement gathering
- (a) 4, 1, 3, 2
 - (b) 4, 3, 2, 1
 - (c) 1, 2, 3, 4
 - (d) 1, 4, 2, 3
- (1.3) Software Requirement Specification should come up with following features: (CO2,K2) 1
- (a) User Requirements are expressed in natural language.
 - (b) Technical requirements are expressed in structured language, which is used inside the organization.
 - (c) Design description should be written in Pseudo code.
 - (d) All mentioned above

- (1.4) Use case description contents include _____(CO2,K2) 1
- (a) Use case name and number
 - (b) Actors
 - (c) Stakeholder and needs
 - (d) All of the mentioned
- (1.5) A Class consists of which of these abstractions.(CO3,K2) 1
- (a) Set of the objects
 - (b) Operations
 - (c) Attributes
 - (d) All of the mentioned
- (1.6) Select incorrect about structural design.(CO3,K2) 1
- (a) Structural design introduced notations and heuristics
 - (b) Structural design emphasis on procedural decomposition
 - (c) The advantage is data flow representation
 - (d) It follows Structure chart
- (1.7) Functionality of the software is tested by:(CO4,K2) 1
- (a) White box testing
 - (b) Black box Testing
 - (c) Regression Testing
 - (d) None of the above
- (1.8) Software mistakes during coding is known as:(CO4,K2) 1
- (a) Failures
 - (b) Defects
 - (c) Bugs
 - (d) Errors
- (1.9) Risk planning involves - (CO5, K2) 1
- (a) Avoidance strategies
 - (b) Minimization strategies
 - (c) Contingency plan
 - (d) All the above
- (1.10) Clean Room software engineering primarily focuses on:(CO5,K2) 1
- (a) Reducing the cost of maintenance
 - (b) Increasing the speed of development
 - (c) Improving software quality by preventing defects
 - (d) Facilitating easier software reengineering

2. Attempt all parts:-

- (2.1) Discuss the benefits of prototyping. (CO1,K2) 2
- (2.2) Explain in detail about various component of an SRS.(CO2,K2) 2
- (2.3) List various notations used in deployment diagram.(CO3,K3) 2
- (2.4) Explain the term Walkthrough.(CO4,K2) 2

(2.5)	Describe how many phases are there in Taute Maintenance Model.(CO5,K2)	2
SECTION-B		30
Answer any <u>one</u> of the following:-		
(3.1)	Define software product, software project and software process. (CO1,K1)	6
(3.2)	Explain Management and Customer Myth.(CO1,K2)	6
Answer any one of the following:-		
(3.3)	Explain a typical SRS structure and its parts.(CO2,K2)	6
(3.4)	List the characteristics used to describe the Key process Areas.(CO2,K2)	6
Answer any one of the following:-		
(3.5)	Compare and contrast between Top-Down and Bottom-Up approaches for architecture design modeling. (CO3, K4)	6
(3.6)	Explain about the cardinality and modality with suitable example.(CO3,K2)	6
Answer any one of the following:-		
(3.7)	Compare and contrast Functional testing and Structural testing.(CO4,K2)	6
(3.8)	Discuss the limitations of testing. Why do we say that complete testing is impossible. (CO4, K2)	6
Answer any one of the following:-		
(3.9)	Define Software Configuration Model in detail. Explain its types.(CO5,K2)	6
(3.10)	Explain the various method encountered in cost estimation of software development.(CO5,K2)	6
SECTION-C		50
4. Answer any <u>one</u> of the following:-		
(4.1)	Provide a comparison between the following models. Provide each of their definition advantages and disadvantages. (a) Waterfall Model (b) Spiral Model.(CO1,K2)	10
(4.2)	Explain why a software system that is used in a real-world environment must change or become progressively less useful.(CO1,K3)	10
5. Answer any <u>one</u> of the following:-		
(5.1)	Draw the different levels of DFD and flow chart for online student portal.(CO2,K3)	10
(5.2)	Discuss the difference between functional & non-functional requirement.(CO2,K2)	10
6. Answer any <u>one</u> of the following:-		
(6.1)	Draw and explain component diagram for E-Library management System.(CO3,K3)	10
(6.2)	Design and explain Sequence diagram for Online Grocery Management System.(CO3,K3)	10
7. Answer any <u>one</u> of the following:-		
(7.1)	Differentiate between White Box and Black Box Testing.(CO4,K3)	10
(7.2)	Explain Boundary Value Analysis with example.(CO4,K2)	10
8. Answer any <u>one</u> of the following:-		
(8.1)	List the important shortcomings of LOC for use as a software size estimations.(CO5,K3)	10

- (8.2) Explain the baseline in the context of software configuration management ? Explain 10
Describe Describe how a baseline can be updated to form a new base line.
(CO5,K3)

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