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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

MCA (Integrated)

SEM: IV - THEORY EXAMINATION (20..... - 20.....)

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. If you were a lead developer of a software company and you are asked to submit a project/product within a stipulated time-frame with no cost barriers, which model would you select? [CO1,K3] 1

- (a) Spiral
- (b) Waterfall
- (c) RAD
- (d) Incremental

1-b. The _____ method is also known as the iterative enhancement model.[CO1,K1] 1

- (a) prototype
- (b) Incremental
- (c) spiral
- (d) waterfall

1-c. Requirements analysis is critical to the success of a development project.[CO2,K1] 1

- (a) TRUE
- (b) False
- (c) Depends upon the size of project
- (d) None of the mentioned

- 1-d. _____ is a document, formally captures all functional and non-functional requirements of a system.[CO2,K1] 1
- (a) Use Case Diagram
 - (b) ER Diagram
 - (c) SRS Document
 - (d) Feasibility Report
- 1-e. If all tasks must be executed in the same time-span, what type of cohesion is being exhibited?[CO3,K1] 1
- (a) Functional Cohesion
 - (b) Temporal Cohesion
 - (c) procedural cohesion
 - (d) Sequential Cohesion
- 1-f. In Design phase, which is the primary area of concern?[CO3,K1] 1
- (a) Architecture
 - (b) Data
 - (c) Interface
 - (d) All of the mentioned
- 1-g. Testing done without planning and Documentation is called_____. [CO4,K1] 1
- (a) Unit testing
 - (b) Regression testing
 - (c) Adhoc testing
 - (d) None of the mentioned
- 1-h. White-Box testing is also known as_____. [CO4,K1] 1
- (a) Functional Testing
 - (b) Structural Testing
 - (c) Behavioural Testing
 - (d) None of the mentioned
- 1-i. Choose the suitable options with respect to regression testing. [CO5,K1] 1
- (a) It helps in development of software
 - (b) It helps in maintenance of software
 - (c) It helps in development & maintenance of software
 - (d) none of the mentioned
- 1-j. Main goal of Clean Room Software Engineering is _____. [CO5,K1] 1
- (a) Achieve zero-defect software
 - (b) Lower development cost
 - (c) Improve team collaboration
 - (d) Reduce project time

2. Attempt all parts:-

2.a.	Explain the advantages and disadvantages of spiral model.[CO1,K3]	2
2.b.	Define functional requirements. [CO2,K1]	2
2.c.	List any two benefits of object-oriented design.[CO3,K1]	2
2.d.	Explain about Cyclomatic Complexity.[CO4,K1]	2
2.e.	Explain the importance of maintenance in SDLC in detail.[CO5,K2]	2

SECTION-B

30

3. Answer any five of the following:-

3-a.	Explain the differences between verification and validation in software development.[CO1,K1]	6
3-b.	Explain the different development models along with their merits and demerits. [CO1,K4]	6
3-c.	Explain the components of SRS in detail.[CO2,K2]	6
3-d.	describe the essential skill sets required for a person leading the requirements gathering process.[CO2,K2]	6
3.e.	Explain the following :(i) Modularity (ii) Abstraction(iii) Cohesion [CO3,K2]	6
3.f.	Discuss integration testing and explain the differences between top-down and bottom-up integration strategies. Provide suitable examples.[CO4,K2]	6
3.g.	Define Six Sigma and how is it important in project management? [CO5,K1]	6

SECTION-C

50

4. Answer any one of the following:-

4-a.	Explain the importance of a well-defined software process and how it contributes to the successful delivery of high-quality software products.[CO1,K1]	10
4-b.	Analyze how Agile methodology addresses the shortcomings of traditional software process models and supports dynamic project requirements.[CO1,K4]	10

5. Answer any one of the following:-

5-a.	Illustrate the role of Data Flow Diagrams (DFDs) in modeling system processes, and compare different levels of DFDs used in system analysis.[CO2,K4]	10
5-b.	Write a short Note on: a)Use Case Diagram b) Data Dictionary c) Data Flow Diagram[CO2,K4]	10

6. Answer any one of the following:-

6-a.	Apply the concept class diagram for a banking system that includes account, customer, and transaction classes.[CO3,K4]	10
6-b.	Apply the concept of cohesion and coupling to evaluate two software modules and suggest improvements.[CO3,K4]	10

7. Answer any one of the following:-

7-a.	Explain the various levels of software testing. Also explain some of the limitations of testing.[CO4,K2]	10
7-b.	Explain the following: (i) Review(ii) Code Inspection(iii) Walkthrough[CO4,K2]	10

8. Answer any one of the following:-

- 8-a. Write short notes on the following: (i) Re-Engineering (ii) Forward Engineering (iii) Reverse Engineering[CO5,K2] 10
- 8-b. Write short notes on the following: (i) COCOMO Model (ii) Risk Management (iii) Configuration Management[CO5,K2] 10

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