Printed Page:- 04

Subject Code:- ACSBS0304

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: III - 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-c. How many types of COCOMO models are there? (CO2) 1

(a) one

(b) two

(c) three

(d) four

1-a. The process of developing a software product using software engineering principles and methods is referred to as_____. (CO1) 1

(a) Software Engineering

(b) software Evolution

(c) System Models

(d) Software Models

1-d. Which of the following are valid step in SDLC framework? (CO2) 1

(a) Requirement Gathering

(b) System Analysis

(c) Software Design

(d) All of the above

1-b. If Software engineers use their skills to misuse other people computers. What does misuse refer to: (CO1) 1

(a) Dissemination of viruses or other malware

(b) Unauthorized modification of computer material
(c) Unauthorized access to computer material
(d) All of the above

1-e. What is MTTF ? (CO3) 1

(a) Maximum time to failure
(b) Mean time to failure
(c) Minimum time to failure
(d) None of the mentioned

1-f. Suitability, Accuracy, Interoperability, and security are what type quality attribute of ISO 9126 ? (CO3) 1

(a) Reliability
(b) Efficiency
(c) Functionality
(d) Usability

1-g. Arrange the given sequence to form a SRS Prototype outline as per IEEE SRS Standard. (CO4) 1

i. General description
ii. Introduction
iii. Index
iv. Appendices
v. Specific Requirements

(a) iii, i, ii,v, iv
(b) iii, ii, i, v, iv
(c) ii, i, v, iv, iii
(d) iii, i, ii

1-h. What are the types of requirement in Quality Function Deployment(QFD) ? (CO4) 1

(a) Known, Unknown, Undreamed
(b) User, Developer
(c) Functional, Non-Functional
(d) Normal, Expected, Exciting

1-i. Which testing method is also known as "Black Box Testing"? (CO5) 1

(a) Unit Testing
(b) Integration Testing
(c) System Testing
(d) Functional Testing

1-j. Software Quality metrices can be classified into _____ types (CO5) 1

(a) 3
(b) 2
(c) 5

(d) 4

2. Attempt all parts:-

2.a.	What is meant by Software and Software Engineering? (CO1)	2
2.b.	Who are the people involved in the phases of Waterfall Model? (CO2)	2
2.c.	Define Mean time between failure (MTBF). (CO3)	2
2.d.	What do you mean by DFD. Why they are useful? (CO4)	2
2.e.	Define test cases in testing? (CO5)	2

SECTION-B 30

3. Answer any five of the following:-

3-a.	How are software myths affecting software process? Explain with the help of examples. (CO1)	6
3-b.	What are the requirement of certification? Write Characteristics of Good SRS? (CO1)	6
3-c.	Briefly Explain graph in COCOMO Models- (i) Efforts Versus Product Size (ii) Development Time Versus Size (CO2)	6
3-d.	State advantage and disadvatage of Spiral Model? (CO2)	6
3.e.	Explain different quality attributes of Software Quality Model ISO 9126 ? (CO3)	6
3.f.	Describe how software requirements are documented? State the importance of documentation. (CO4)	6
3.g.	Draw graph between modules and cost of effort for defining modularity and software cost. (CO5)	6

SECTION-C 50

4. Answer any one of the following:-

4-a.	Write Short Note on: (CO1) i. Transient failure ii. Non-corruption failure iii. Recoverable failure	10
4-b.	(i) Explain Software Charecteristics. (ii) How do you differentiate software engineering from system engineering? (CO1)	10

5. Answer any one of the following:-

5-a.	What are the limitation of Prototype models? Explain with all phases of prototype model? (CO2)	10
5-b.	A company needs to develop digital signal processing software for one of its newest inventions. The software is expected to have 20000 lines of code. The company needs to determine the effort in person-months needed to develop this software using the basic COCOMO model. The multiplicative factor for this model is given as 2.2 for the software development on embedded systems, while the exponentiation factor is given as 1.50. Find out the estimated effort in person-months. (CO2)	10

6. Answer any one of the following:-

6-a.	Describe the following terms: i) Operational Profile ii) Input space iii) MTBF iv) MTTF v) Failure intensity (CO3)	10
6-b.	Explain the Boehm software quality model with the help of a block diagram. (CO3)	10

7. Answer any one of the following:-

7-a.	Explain the purpose of data flow diagrams. Mention the notations used for the same. Explain by constructing a context flow diagram level -0 DFD and level-1 DFD for a student attendance management system. (CO4)	10
7-b.	Write the use case diagram for library management system. Explain all the necessary steps involved. (CO4)	10

8. Answer any one of the following:-

8-a.	Explain Class Responsibility Collaborator (CRC) model? (CO5)	10
8-b.	What are the objectives of testing? Define White Box Testing. What are the two levels of testing? (CO5)	10