615440-NEP

262(B)N

B. Sc. (Fifth Semester)

EXAMINATION, 2024-25

COMPUTER SCIENCE

(Software Engineering)

ime : Two hours] **[Maximum Marks : 70**

Notes: *(i) Attempt any* **five** *questions from Section A and any* **three** *questions from Section B.*

(ii) Answer each question of Section A within 50 words.

(iii) Limit your answers within the given answer book. Additional answer book (B-Answer book) should not be provided or used.

Section-A

Note: *Attempt any* **five** *questions. Each question carries 5 marks.*

. What are the essential components of SRS document?

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2. Distinguish between functional and non-functional requirements.

3. How are PERT charts used to plan the scheduling of projects?

4. Differentiate between reactive vs proactive risk strategies.

5. State the importance of scheduling activity in Project management.

6. How does SEI CMMI help to improve software development process?

7. Explain briefly about reengineering activities.

Section-B

Note: *Attempt any* **three** *questions. Each question carries 15 marks.*

1. Write short notes on any three of the following:

(i) Role of PSP and Six Sigma in software quality management

(ii) Spiral model

(iii) Software verification and validation

(iv) Software Repository.

2. (a) Describe software engineering layers with a neat diagram.

   (b) Differentiate between waterfall and incremental model.

3. (a) What do you understand by software testing and how can you decide that the testing can be stopped?

   (b) "It is always advisable to identify and fix the bug during execution phase". Justify this statement with suitable justification.

4. (a) What do you mean by the terms cohesion and coupling in the context of software engineering? How are these concepts useful in arriving at a good design of a system? Explain with example.

   (b) Define Software architecture. Explain why it may be necessary to design the system architecture before the specifications? Compare function oriented and object-oriented designs.

5. Why is it so important to include boundary values in your black-box test data? Illustrate with examples in which a test suite developed using

black box techniques might give the impression that ''everything is OK'', while a test suite developed with whit box testing techniques (for example, branch coverage) might uncover a fault and vice versa.

6. (a) What is meant by Software Quality? Give an overview of various software Quality factors?

(b) What is SQA? Discuss in detail SQA Activities.

7. (a) What are the various models used to compute the cost estimation of a software project? Explain in detail the COCOMO model.

(b) A software has to be developed for automating the manual library of a university. The system should be stand alone in nature. It should be designed to provide functionalities as explained: Issue of books, Return of books, Query processing and Report generation. Generate the following UML Diagram for this case:

(i) Use Case Diagram,

(ii) Class Diagram.