

# CBCS SCHEME



18CS35

## Third Semester B.E. Degree Examination, June/July 2025 Software Engineering

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. Explain the term software engineering and system engineering; mention the important attributes of good software products. (08 Marks)
- b. What is the most important difference between generic software product development and custom software development? (04 Marks)
- c. What is a software process model? Explain the types of software process models. (08 Marks)

OR

- 2 a. Explain the requirements engineering process with block diagram. (08 Marks)
- b. Explain the structure of requirement document. (06 Marks)
- c. What is requirements specification? Explain various ways of writing system requirements. (06 Marks)

### Module-2

- 3 a. Briefly explain following characteristics and themes of object oriented systems: Classification, Identity, inheritance, encapsulation, polymorphism, sharing, synergy. (08 Marks)
- b. Describe in detail the stages of object oriented methodology. (06 Marks)
- c. Explain in brief – class model, state model and interaction model. (06 Marks)

OR

- 4 a. Define the purpose of the following terms with suitable example and UML notation with respect to class model –  
i) Multiplicity  
ii) Association class and  
iii) Bag and Sequence. (08 Marks)
- b. Prepare a class diagram for each group of classes. Add at least 10 relationships (association and generalizations) to each diagram.  
File system, file, ASCII file, binary file, directory file, disc, drive, track, sector. (06 Marks)
- c. Illustrate overriding features with example. (06 Marks)

### Module-3

- 5 a. State context models. Draw a context model for inventory control system. (08 Marks)
- b. Explain : i) Generalization ii) Aggregation (04 Marks)
- c. Write use case model ( text form) and draw use case diagram for ATM system. (08 Marks)

OR

- 6 a. What is sequence model? Write sequence diagram for issuing book in library management system. (08 Marks)
- b. Draw and explain the state diagram for typical weather station. (06 Marks)
- c. Explain Rational unified process. With figure explain the phases of RUP. (06 Marks)

**Module-4**

- 7 a. Explain development testing. Discuss three levels of granularity carried out in testing. (08 Marks)
- b. What is test driven development? With neat diagram, explain test driven development process. (08 Marks)
- c. Explain user testing. (04 Marks)

OR

- 8 a. With neat diagram, show the software evolution process and explain the 'Lehman's Law' concern to system change. (08 Marks)
- b. What are the different types of software maintenance? What are the key factors that distinguish development and maintenance? (08 Marks)
- c. Explain the four strategic options of legacy system management. (04 Marks)

**Module-5**

- 9 a. List and explain factors affecting software pricing. Also differentiate between milestones and deliverables. (08 Marks)
- b. For a software project, different activities and their durations are listed as below. Draw the activity chart and explain.

Task	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>	T <sub>6</sub>	T <sub>7</sub>	T <sub>8</sub>	T <sub>9</sub>	T <sub>10</sub>	T <sub>11</sub>	T <sub>12</sub>
Duration ( in days)	8	15	15	10	10	5	20	25	15	15	7	10
Dependencies	-	-	T <sub>1</sub>	-	T <sub>2</sub> , T <sub>4</sub>	T <sub>1</sub> , T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>3</sub> , T <sub>6</sub>	T <sub>5</sub> , T <sub>7</sub>	T <sub>9</sub>	T <sub>11</sub>

- c. Write a note on project duration and staffing. (08 Marks)
- (04 Marks)

OR

- 10 a. Distinguish between software inspection and testing. What are the advantages of inspection over testing? (08 Marks)
- b. Explain briefly the software review process. (04 Marks)
- c. Explain different types of software standards and mention their importance. Also write any four product and process standards. (08 Marks)

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