

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: BCA
BRANCH: BCA**

**SEMESTER : IV
SESSION : SP/2025**

SUBJECT: CN221 SOFTWARE ENGINEERING

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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Q.1(a)	Define Software Life Cycle Models. Explain the importance of selecting an appropriate life cycle model in software development.	[5] 2	2
Q.1(b)	Explain the Prototyping Model of software development. What are its key phases?	[5] 2	2
Q.2(a)	Explain any two metrics used for project size estimation. Provide one example for each.	[5] 5	3
Q.2(b)	Why is Requirements Gathering and Analysis important in software development? List any three techniques commonly used to gather requirements from stakeholders.	[5] 3	1
Q.3(a)	Explain the components and rules of a Data Flow Diagram (DFD). Illustrate your answer with a Level 0 DFD for a Student Management System.	[5] 4	4
Q.3(b)	Draw a Class Diagram and Use-Case Diagram for a Student Database Management System. Include at least four classes and relationships between classes. Each class should contain At least two attributes and at least two methods. In the Use-Case Diagram, include at least three actors and four use-cases. Mark the associations between actors and use cases.	[5] 4	4
Q.4(a)	Differentiate between Unit Testing and Integration Testing with one example each.	[5] 5	2
Q.4(b)	Define Software Reliability. Explain how statistical testing helps improve software reliability.	[5] 5	3
Q.5(a)	What is Software Maintenance? Explain any three characteristics of it.	[5] 5	1
Q.5(b)	Describe the process and benefits of Reverse Engineering in software maintenance.	[5] 5	2

:::25/04/2025:::M