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**K. J. Somaiya Institute of Technology, Sion, Mumbai-22**  
(Autonomous College Affiliated to University of Mumbai)

~~Jan- Feb~~ ~~Nov- Dec~~ 2025-26  
(B. Tech ) Program: Computer Engineering Scheme III  
**Supplementary** ~~Regular~~ Examination: TY Semester: V  
Course Code: CEC502 and Course Name: Software Engineering  
Date of Exam: ~~01/12/2025~~ 04/02/26 Duration: 02.5 Hours Max. Marks: 60

**Instructions:**

- (1) All questions are compulsory.
- (2) Draw neat diagrams wherever applicable.
- (3) Assume suitable data, if necessary.

Q. No.	Question	Max. Marks	CO	BT level
Q 1	Solve any two questions out of three: (05 marks each)	10		
a)	Explain How do you implement version control in a database application?		CO6	U
b)	Design a Waterfall Model for an Online Banking System		CO1	AP
c)	Demonstrate high cohesion and low coupling for library management system considering different modules involved.		CO4	AP
Q 2	Solve any two questions out of three: (05 marks each)	10		
a)	An organic software occupies 15000 LOC. How many programmers are needed to complete?		CO3	U
b)	List testing strategies that address verification. Which types of testing address validation?		CO5	U
c)	Construct first level user side DFD for the following system. An online shopping system for xyz provides many services and benefits to its members and staffs.		CO2	AP
Q.3	Solve any two questions out of three. (10 marks each)	20		
a)	What is unit testing? (2M) Why is it important? (3M) Explain the unit test consideration and test procedure.(5M)		CO5	U
b)	Describe in detail COCOMO model for software cost estimation. Use it to estimate the effort required to build software for a simple ATM that produce 12 screens, 10 reports and has 80 software components. Assume average complexity and average developer maturity. Use application composition model with object points.		CO6	AP

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c)	i) Elaborate on the series of tasks of a software configuration management process. (5M) ii) Describe function point analysis with a neat example(5M)		CO6	U
Q.4	Solve any two questions out of three. (10 marks each)	20		
a)	Explain in detail about spiral model with a neat sketch and describe why this model comes under both evolutionary and RAD models.		CO1	U
b)	How function point analysis methodology is applied in estimation of software size? Explain. (5M) Why FPA methodology is better than LOC methodology?(5M)		CO3	U
c)	Consider the process of ordering a pizza over the phone. Draw the use case diagram and also sketch the activity diagram representing each step of the process, from the moment you pick up the phone to the point where you start eating the pizza. Include activities that others need to perform. Add exception handling to the activity diagram you developed. Consider at least two exceptions.(Ex : Delivery person wrote down wrong address, deliver person brings wrong pizza).		CO4	AP

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