

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

May-June 2026		
(B. Tech)Program: Computer Engineering Scheme IIB		
Regular Examination: TY Semester: VI		
Course Code: CEC601 and Course Name: System Programming & Compiler Construction		
Date of Exam: 18 /05/2026	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)	List and explain features of Macro facility		CO3	U
b)	Explain Forward reference problem with Example		CO2	U
c)	List and explain any 4 system programs and 4 application programs.		CO1	U
Q 2	Solve any two questions out of three: (05 marks each)	10		
a)	Analyze the given grammar and find first and follow. 1) $S \rightarrow aABb$, $A \rightarrow c/\epsilon$, $B \rightarrow d/\epsilon$ 2) $S \rightarrow AaAb \mid BbBa$, $A \rightarrow \epsilon$, $B \rightarrow \epsilon$		CO5	AN
b)	List and explain elements of the assembly language program.		CO2	U
c)	What are different Loop Optimization techniques? Explain with examples.		CO6	U
Q.3	Solve any two questions out of three. (10 marks each)	20		
a)	Consider the following grammar. $S \rightarrow AaAb \mid BbBa$ $A \rightarrow \epsilon$ $B \rightarrow \epsilon$ Check if grammar is LL(1).		CO5	AP
b)	Explain direct linking loader.		CO4	AP
c)	Explain different data structures used in Macroprocessor.		CO3	U

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Q.4	Solve any two questions out of three. (10 marks each)	20		
a)	Analyze given grammar and check whether it's LL1 Grammar or Not. $S \rightarrow aABb$, $A \rightarrow c e$, $B \rightarrow d e$		CO5	AN
b)	Draw and explain basic flowchart of Single pass Assembler.		CO2	U
c)	Explain Triple and Quadruple with respect to TAC. Show the Triple and Quadruple for the following statement $a := b * -c + b * -d$		CO6	AP
