B.No. 2

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December 2023 (REEXAM)

TY B.Tech (SEMESTER - I)

COURSE NAME: System Programming Branch: E&TC COURSE CODE: ETUA31205A

(PATTERN 2020)

Time: [2 Hrs] **[Max. Marks: 60]**

(*) Instructions to candidates:

1) **Figures to the right indicate full marks.**
2) **Use of scientific calculator is allowed**
3) **Use suitable data wherever required**
4) **All questions are compulsory. Solve any two sub questions each from each Question 1 ,2, 3,4,5,and 6 respectively**

Q. No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a) Define language processing activities in the context of compiler design.	[5]	CO1	Understand
	b) Explain the basic concepts of lexical analysis and syntax analysis in language processing.	[5]	CO1	Understand
	c) List and explain the major components of system software.	[5]	CO1	Understand
Q2	a) Differentiate between a macro and a function in programming languages.	[5]	CO2	Analyze
	b) Describe the steps involved in the macro expansion process.	[5]	CO2	Understand
	c) Explain the Advance Macro Facilities	[5]	CO2	Understand
Q3.	a) Explain the concept of a Compile and Go loader and its advantages.	[5]	CO3	Analyze
	b) Describe the working principle of an Absolute Loader Scheme.	[5]	CO3	Understand
	c) Define the overlay structure in the context of program execution	[5]	CO3	Understand
Q.4	a) Define the structure of a compiler. Explain the purpose of the front-end and back-end components.	[5]	CO4	Apply
	b) Explain the significance of the specification of tokens in the lexical analysis phase.	[5]	CO4	Apply
	c) Outline the steps involved in the generation of a lexical analyzer using LEX.	[5]	CO4	Understand
Q.5	a) Find whether the following grammar is LL(1) or not S-> abSa | aaAb A->baAb | b	[5]	CO5	Analyse
	b) Explain the ambiguities in Context Free Grammer	[5]	CO5	Understand
	c) Discuss the process of automatic construction of parsers using YACC.	[5]	CO5	Apply
Q.6)	a) Explain the shift-reduce parsing technique. How is it applied in bottom-up parsing?	[5]	CO6	Understand
	b) Explain the concepts of Constant Folding and Dead Code Elimination in the context of code optimization.	[5]	CO6	Understand
	c) Discuss the application of dynamic programming in code generation for optimization.	[5]	CO6	Apply