Marking Scheme

May 2022 (ENDSEM) EXAM
T.Y./ B. TECH. (SEMESTER - II)
COURSE NAME: System Programming
COURSE CODE: ETUA40181D
(PATTERN 2018)

Time: [1Hr] [Max. Marks: 30]

(*) Instructions to candidates:
1) Figures to the right indicate full marks.
2) Use of scientific calculator is allowed
3) Use suitable data where ever required

Question No.	Question Description	Marks
Q.1	a) Illustrate Interpreter with its components.	
	1. Basics of Interpreter	[2]
	2. Components (Block diagram)	[2]
Q.2	b) Consider "d = a + b * 2;" and show the output of each phase of compiler with suitable diagram.	
	1. Output of each phase	[3]
	2. Diagram explaining the stages	[3]
	OR	
	a) Illustrate with examples regular expressions to recognize the following:	
	i) Signed and unsigned integer numbers	[2]
	ii) Identifiers	[2]
	b) Illustrate working of LEX with suitable diagram. Demonstrate with suitable example.	
	1. Basics of Lexical Analysis, LEX, LEX tool	[4]
	2. Example	[2]
Q.3	a) Illustrate YACC with suitable diagram.	[4]
	b) Consider the Grammar S --> A | a A --> a Find their First and Follow sets.	[6]
	OR	
	a) Construct a parse tree for the following grammar: S -> AB	[4]

A -> c/aA

B -> d/bB

b) Consider the Grammar: [6]

E --> TE'

E' --> +TE' | ε

T --> FT'

T' --> *FT' | ε

F --> id | (E)

*ε denotes epsilon

Find their First and Follow sets.

Q. 5	a) Illustrate three address code with an example.	
	1. Three address code explanation	[2]
	2. Example	[2]
	b) Demonstrate the use of code optimization with suitable example.	
	1. Uses in detail	[3]
	2. Two examples	[3]
	OR	
	a) Demonstrate the role of peephole optimization in Compilation process	
	1. Peephole basic concepts	[2]
	2. Application in compilation	[2]
	b) Illustrate the use of object code in compiler design	
	1. Object code explanation with flowchart/block diagram	[3]
	2. Application	[3]