G.R. No.		PAPER CODE	U482-241D(ESE)

May 2022 (ENDSEM) EXAM
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**

Q.1   a) Illustrate Interpreter with its components.   [4]

     b) Consider "d = a + b * 2;" and show the output of each   [6]
       phase of compiler with suitable diagram.

<center>OR</center>

Q.2   a) Illustrate with examples regular expressions to recognize   [4]
       the following:
     i)   Signed and unsigned integer numbers
     ii)   Identifiers

     b) Illustrate working of LEX with suitable diagram.   [6]
       Demonstrate with suitable example.

Q. 3   a) Illustrate YACC with suitable diagram.   [4]

     b) Consider the Grammar   [6]

        S --> A | a

        A --> a

       Find their First and Follow sets.

<center>OR</center>

Q. 4   a) Construct a parse tree for the following grammar: [4]
             S -> AB

             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.   [4]

        b) Demonstrate the use of code optimization with suitable [6]
            example.
                              OR
Q. 6   a) Demonstrate the role of peephole optimization in   [4]
            Compilation process
                                                                  [6]
        b) Illustrate the use of object code in compiler design