Code No: R1931053 **R19** **SET - 1**

III B. Tech I Semester Regular Examinations, February-2022

COMPILER DESIGN

(Computer Science and Engineering)

Time: 3 hours Max. Marks: 75

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
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UNIT-I

1. a) Explain different phases of a compiler with a neat diagram. [8M]
   b) What is the role of transition diagrams in the construction of lexical analyzer? [7M]

(OR)

2. a) Write a pseudo code to recognize the identifiers and keywords. [8M]
   b) Explain how input buffering helps to speed up the reading of source program. [7M]

UNIT-II

3. a) Explain the parsing techniques with a hierarchical diagram. [8M]
   b) Write Recursive Decent parser for the grammar S→cAd, A→ab|a. [7M]

(OR)

4. a) Differentiate Top Down parsing and Bottom Up Parsing. [8M]
   b) Consider the grammar: [7M]

   E→ E+E
   E→ E*E
   E→id

   Perform shift reduce parsing of the input string “id1+id2+id3”.

UNIT-III

5. a) Explain various data structures used for implementing symbol tables [8M]
   b) Illustrate how the SDT scheme is used for assignment statements to generate the intermediate code. [7M]

(OR)

6. a) Write the short note on: [8M]
   (i) Abstract syntax tree
   (ii) Polish notation
   (iii) Three address code
   (iv) Back patching

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b) Write quadruples, triples and indirect triples for the expression: -(a*b)+(c+d)-(a+b+c+d) [7M]

UNIT-IV

7. a) Illustrate the storage organization memory in the perspective of compiler writer with neat diagram. [8M]
   b) Distinguish between Static and Dynamic storage allocation. [7M]

(OR)

8. a) What is activation record? Write the various fields of Activation Record. [8M]
   b) Write the definition of symbol table and procedure to store the names in symbol table. [7M]

UNIT-V

9. a) Write about all issues in code generation. Describe it. [8M]
   b) Explain the peephole optimization Technique? [7M]

(OR)

10. What is code optimization? Compare machine dependent and independent code optimization techniques. [15M]

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