

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

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 $S \rightarrow cAd$, $A \rightarrow ab | a$. [7M]

(OR)

4. a) Differentiate Top Down parsing and Bottom Up Parsing. [8M]
b) Consider the grammar:
 $E \rightarrow E+E$
 $E \rightarrow E * E$
 $E \rightarrow id$

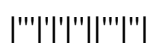
Perform shift reduce parsing of the input string "id1+id2+id3".

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



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]

