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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester Regular Examinations July-2021

COMPILER DESIGN

(Computer Science & Information Technology)

Time: 3 hours

Max. Marks: 60

PART-A

(Answer all the Questions 5 x 2 = 10 Marks)

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|---|---|----|----|
| 1 | a List the various phases of a compiler. | L1 | 2M |
| | b Problems in Top Down Parsing. | L1 | 2M |
| | c What is mean by shift reducing parsing? | L1 | 2M |
| | d Write properties of memory management. | L3 | 2M |
| | e Give the different forms in target program. | L2 | 2M |

PART-B

(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

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|---|---------------------------------------|----|----|
| 2 | a Explain the Structure of Compiler. | L3 | 6M |
| | b Write short notes on Bootstrapping. | L3 | 4M |

OR

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|---|--|----|----|
| 3 | a Explain in detail about the role of lexical analyzer in Compiler Design. | L2 | 5M |
| | b Write about input buffering. | L2 | 5M |

UNIT-II

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|---|--|----|----|
| 4 | a Write about left most and right most derivations | L3 | 5M |
| | b Calculate FIRST and FOLLOW for the following grammar?
S->xABC
A->a bbD
B->a ε
C->b ε
D->c ε | L3 | 5M |

OR

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|---|---|----|-----|
| 5 | Consider the grammar
E->E+T/T,
T->T*F/F,
F->(E) id Construct predictive parsing table and check given grammar is LL(1) or not? | L3 | 10M |
|---|---|----|-----|

UNIT-III

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|---|--|----|-----|
| 6 | Define augmented grammar. Construct the LR(0) items for the following Grammar.
S->L=R
S->R
L->*R
L->id
R->L | L1 | 10M |
|---|--|----|-----|

OR

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|---|--|----|-----|
| 7 | Explain syntax directed definition with simple examples. | L2 | 10M |
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UNIT-IV

8 Describe the Storage Organization with simple examples.

L2 10M

OR

9 Describe about Control Flow Statements.

L2 10M

UNIT-V

10 a Discuss the various strategies in register allocation.

L2 5M

b Write about loop optimization techniques.

L3 5M

OR

11 Construct the DAG for the following basic blocks

L3 10M

1. t1:=4*i

2. t2:=a[t1]

3. t3:=4*i

4. t4:=b[t3]

5. t5:=t2*t4

6. t6:=prod+t5

7. prod:=t6

8. t7:=i+1

9. i:=t7

10. if i<=20 goto 1

END