Printed Pages – 4 Roll No. : .....

322652(22)

APR-MAY 2022

B.E. (Sixth Semester) Examination ~~2020~~

(New Scheme)

(CSE Branch)

COMPILER DESIGN

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Part (a) is compulsory and contains 2 marks each. Part (b), (c) and (d) contains 7 marks each. Attempt any two parts out of (b), (c) and (d).*

Unit - I

1. (a) Define compiler. 2

(b) Describe the different phases of compiler with example. 7

(c) What do you mean by LEX? Explain. 7

(d) Convert $(0 + 1)^* \cdot 01$ into a DFA using subset construction and minimize it also. 7

Unit - II

2. (a) What do you mean by left recursion illustrate with example. 2

(b) For the grammar : 7

$E \rightarrow TE^1$

$E^1 \rightarrow +TE^1 \mid \in$

$T \rightarrow FT^1$

$T^1 \rightarrow * FT^1 \mid \in$

$F \rightarrow (E) \mid id$

Construct LL(i) prediative parsor table.

(c) Construct LR(0) item and SLR parsor table for the following grammar : 7

$S \rightarrow CC$

$C \rightarrow cC$

$C \rightarrow d$

(d) Construct CLR (i) parsor table for

$S \rightarrow Aa\,Ab \mid Bb\,Ba,\ A \rightarrow \in,\ B \rightarrow \in$ 7

Unit - III

3. (a) Define syntex tree. 2

(b) Differentiate between syntonized and inherited attribute. 7

(c) Translate the expression $A = -B * C * D$ into 3AC, Quadruple, triple and indirect triple. 7

(d) Using the given grammar write a SDD to evaluate an expression and construct the annotated parse tree for $a * 5 + 4$.

$E \rightarrow E + T \mid T$

$T \rightarrow T * F \mid F$

$F \rightarrow (E) \mid \text{Num}$ 7

Unit - IV

4. (a) What is symbol table. 2

(b) Describe various allocation strategies. 7

(c) Explain actuation record. 7

(d) What do you mean by parameter passing techniques. Explain with example. 7

Unit - V

5. (a) What do you mean by code optimization? 2

(b) Discuss various issues in code generation. 7

(c) What is loop optimization. Explain with example. 7

(d) For the given expression. Give 3 AC, syntex tree and DAG.

$$a = b \times -c + b \wedge \neg c$$ 7