Roll Number: _____	
Thapar Institute of Engineering and Technology, Patiala Department of Computer Science and Engineering **END SEMESTER EXAMINATION**	
M.C.A. (Third Year): Semester-I (2018-19)	Course Code: PCA-511 Course Name: Compiler Construction
Dec.1, 2018	Saturday, 2:00 – 5.00 PM
Time: 3 Hours, M. Marks: 100	Name of Faculty: Shalini Batra

Q1a) Consider the following R.E.

a(a/b)*b*abb*

i) Draw the DFA for this language using Syntax tree **or** Thompson's method followed by Subset Construction (5+8)

ii) Is this DFA minimize? If not minimize the DFA obtained (2)

b) Diagrammatic represent all the phases of compiler. **(No Theory required)** (5)

Q2. a) Consider the following grammar:

E→ E M T | T
T→ T A F | F
F → id | (E)
M → *| ÷
A→ + | -

i) Remove left recursion from the grammar given above. (5)

ii) Construct the LL(1) parsing table for the above grammar. (10)

iii) Check whether the string " id * id + id" is parsed by this grammar or not. (5)

Q3. a) Consider the following grammar:

S → V = E
E →F | E+F
F → V | **id** | (E)
V→ **id**

i) Generate the Set of items for the above grammar. (8)

ii) Construct the LR(1) parsing table for the above grammar. (5)

iii) Check whether the string "id=id+id" is accepted or not. (3)

b) Compare and contrast top down and bottom up parsing techniques. (4)

Q4. a) Translate the following into triples, quadruples and indirect triples: (6)

k = -(a- b) + (c * -z) / (a - y)

b) Draw the DAG for the following expression: (2)

$(x * y + z) / (y + z) - (x + y + z)$

c) Explain any **two** storage allocation strategies **in short**. (6)

d) Discuss any **three** code optimization techniques with examples. (6)

Q5. Write notes on

a) **Any two** parameter passing schemes. (6)

b) Synthesized and inherited attributes (6)

c) Activation record (6)

d) Annotated parse tree. (2)

R. No — UME con — Sheet No

253A Arshdeep Sd. - 10160 1011 — UCH501 470648 UME

4191845

1. PCS — 106
2. UEE — 505
3. UCH — 501
4. UCE — 501
5. PCY — 109
6. UME — 407
7. UBT — 602
8. PCA — 511
9. PBT — 109

Mansi - 80183 2033 - (G315) PCS 106