Reg No.										

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VI SEMESTER B.E(CSE) DEGREE END SEM EXAMINATION
MAY-2014
LANGUAGE PROCESSORS (CSE 302)

TIME : 3 HOURS DATE: XX-05-2014 MAX.MARKS :50

Instructions to Candidates

- Answer any 5 full questions.
- Missing data can be suitably assumed

1A. Write regular definition which accepts unsigned numbers of the form : 1.23, 1234, 1, 123E2, 12E-4, 34E+2, 0.14, 1.2E+4, 1.1E-5, 1.2E3.Also draw transition diagram for same.

1B. How are reserved words handled by lexical analyzer?

1C. Construct a DFA from a regular expression (a|b)+, using Thompson algorithm and subset construction.

[3+2+5]

2A. Explain single pass assembler.

2B. Explain any three principles used in designing calling sequence and layout of activation records.

[4+6]

3A. Consider a CFG
S →aB | bA
A →a| aS | bAA
B →b | bS| aBB

i. Obtain the leftmost and rightmost derivation for the input: "aaabbabbba"
ii. Construct parse tree for both the derivations and check whether it is ambiguous?

3B. Convert a given regular expression abb(a|b)*c into CFG.

3C. Construct predictive parsing table for the grammar given below.
S' → S
S → qABC
A →a | bbD
B → a| ε
C → b| ε
D → C | ε

[(2+2)+2 +4]

4A. Explain various phases of front-end of compiler with the help of a diagram.

4B. Give the algorithm for partitioning three address instructions into basic blocks. Draw the flow graph for the given three address code below.

```
t1 = 2 * i
t2 = a + t1
t3 = 2 * i
t4 = b=t3
t5 = t2 * t4
t6 = p + t5
t7 = i + 1
i = t7
if i < = 40 goto (1)
```

[4+6]

5A. Differentiate between SLR,CLR and LALR .

5B. Consider following piece of code:

```
i=1;
while(i<=10)
{
A[i] = 0;
i=i+1;
}
```

Write three address code assuming array elements are 4 bytes.

5C. Translate the following expression into quadruple,triple and indirect triple:
-(a+b)*(c+d)-(a+b+c)

[3+2+5]

6A. Construct the LR(0) DFA for the grammar.

S →aSA|a
A →bB|cc
B →bd|a

Draw SLR parse table and Show parser actions for the input string: "aabbdcc"

6B. Given grammar

E → E+T |T
T → T*F | F
F →(E) | **id**

And string **"a+b*c"**

Write semantic rules for each production.

Construct syntax tree according to rules and also draw abstract syntax tree.

[6+4]

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