Reg. No.									

Manipal Institute of Technology, Manipal

(Constituent Institute of Manipal University)

VI SEMESTER B.TECH (COMPUTER SCIENCE AND ENGINEERING)
DEGREE MAKEUP EXAMINATIONS, JUN/JULY 2016
SUBJECT : LANGUAGE PROCESSORS(CSE 302)
REVISED CREDIT SYSTEM
DATE: 27-06-2016

TIME:03 HOURS MAX.MARKS : 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** questions.
- Missing data, if any, may be suitably assumed.

1A. With a neat diagram explain the different phases of a compiler. 3M

1B. Explain the input buffering schemes for scanning the source program. How the use of sentinels can improve its performance ? Describe in detail. 4M

1C. Convert the regular expression $(a|b)^*abb(a|b)^*$ to DFA using Thompson's algorithm. 3M

2A. Identify the errors if any in the following C program and group the errors into type. 3M

```
#include<stdio.h>
void compute(int n)
{
return n*n;
}
int main() {
int x,y
compute(n);
iff(x < y)
printf(”Largest of x and y is %d”,x);
else
printf(”Largest of x and y is %d”,y);
}
```

2B. Write the LR Parsing algorithm. 2M

2C. Consider the following Context Free Grammar 5M

S → A
A → BC|DBC
B → Bb|ϵ
C → c|ϵ
D → a|d

(i) Is the grammar suitable to be parsed using recursive descent parsing method ? Justify and modify the grammar if needed.

(ii) Compute the FIRST and FOLLOW of each non-terminal.

(iii) Construct the corresponding parsing table using the LL predictive parsing method.

3A. Given the following Context Free Grammar 4M

S → A
S → xb
A → aAb
A → B
B → x

compute the LR(1) items for this grammar and the corresponding DFA.

3B. Construct the LR(1) parsing table for the above grammar. 3M

3C. What is a Handle ? Explain with an example. 3M

4A. Write a Context Free Grammar for representing a signed binary number. The number of binary digits in the number is not fixed. Write an S-attributed definition to obtain the value of the binary number in decimal numbering system. 5M

4B. Given the following syntax tree for an expression, represent the same in three address code, quadruples and triples. 3M

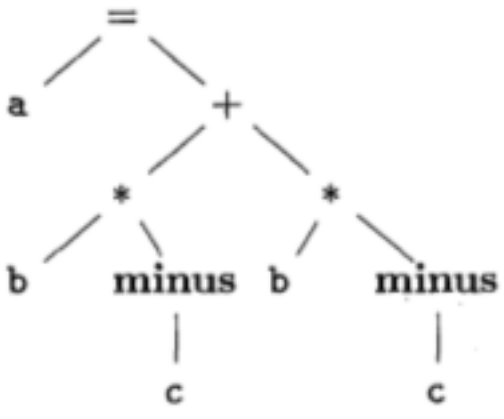

Figure : Q.4B

4C.	With a neat diagram, briefly explain the run-time memory organization.	2M
5A.	Explain the contents of an activation record with a suitable diagram.	3M
5B.	Explain code generation for simple procedure calls using static allocation and stack allocation.	4M
5C.	What is a basic block ? Explain with an example.	3M
6A.	Explain the various types of Assembly Language statements with examples.	3M
6B.	Give the algorithm of two pass assembler.	4M
6C.	Explain error recovery in yacc.	3M