INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR

Name : – Roll No:– – – – – – – – – – – – – –

Instructions : Answer **all** the questions. Answer only what is asked. Do rough work in separate sheet of paper.

1. Given the grammar S' → S
   S → aBc | bCe | aCd | bBd
   B → e
   C → e
   Deduce the LR(1) sets of items. (5)

2. Consider the grammar
   E → E + T

E → T

T → T * F

T → F

F → id

Develop the semantic actions against each rule, such that we can generate the postfix version of an infix expression. (5)

3. Given the grammar
   S → (L)|a
   L → L,S | S
   show the handle of each right sentential form for the string (a,(a,a)) (3)

4. Given the intermediate code

1. location = -1
2. i = 0
3. if i < 100 goto 5
4. goto 13
5. $t_1 = 4 \times i$
6. $t_2 = A[t_1]$
7. if t_2 = x goto 9
8. goto 10
9. location = i
10. $t_3 = i + 1$
11. i = t_3
12. goto 3
13.

Determine the Basic Blocks and draw the block flow diagram. (7)

Block No.	Statements

Block Flow Diagram : (Next page)