Practice set 6

1. Consider the below SDT:

$E \rightarrow E + E$ {Print(+)}
$E \rightarrow a$ {Print(a)}

What is/are the output(s) for the input string a + a + a?

(i) a+a+a

(ii) aa+a+

(iii) aaa++

(iv) +a+aa

(a) Only (i)

(b) Only (ii) and (iii)

(c) Only (ii) and (iv)

(d) All

2. Consider the following SDT.

$X \rightarrow YZ$

$Y \rightarrow Y + Z$ {print (' + ');}
$Y \rightarrow T$ {Y. val = T. val}
$Z \rightarrow * Y$ {print (' * ');} Z
$Z \rightarrow$ T {Z. val = T. val}

$Z \rightarrow \epsilon$

$T \rightarrow$ num {print(num. val);}

For 2+3*2, the above translation scheme prints

(a) 2+3*2

(b) 23+2*

(c) 232*+

(d) 23*2+

3. Consider the following expression

x = a*b – c*d+e

For generating target code how many registers will be required apart from accumulator A?

(a) 1

(b) 2

(c) 3

(d) 5

4. The least number of temporary variables required to create a three – address code in static single assignment form for the expression q + r/3 + s − t ∗ 5 + u ∗ v/w is

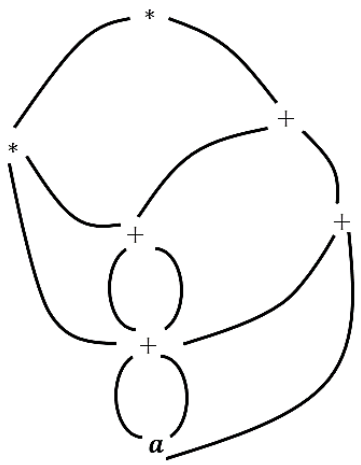
(a) 5

(b) 6

(c) 7

(d) 8

5.Consider the following DAG



Find the value that this DAG evaluates given a=2.

(A) 56

(B) 112

(C) 224

(D) 448

6. Which of the following is/are uses of Syntax Directed Translation?

(i) For storing or retrieving type information in symbol table
(ii) For performing consistency checks like parameter checking, type checking, etc
(iii) To generate intermediate code or target code
(iv) To build syntax trees

(A)Only (i) and (iv)

(B) Only (i) and (ii)

(C) (i), (ii) and (iii)

(D) (i), (ii), (iii) and (iv)

7.Which of the following is/are used for intermediate code generation?

(a) Syntax trees
(b) DAG
(c) Three address code
(d) Postfix notation

(A) (a) and (c)

(B) (a), (b) and (d)

(C) (b) and (d)

(D) (a), (b), (c) and (d)

8. Which of the following is/are TRUE?

(a) Every LL(1) is LR(0) and every LR(0) is LL(1)
(b) Every LL(1) is LR(1) and the vice versa is not true
(c) Every LALR(1) is SLR(1)
(d) If a string is parsed by LL(1) then it must be parsed by LALR(1)

(A) (a) and (c)

(B) (b), (c) and (d)

(C) only (b)

(D) (b) and (c)

9. If attribute can be evaluated in depth-first order then definition is

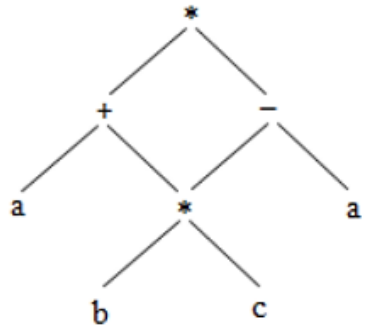
(a) S – attributed

(b) L – attributed

(c) Both (a) and (b)

(d) None of these

10. The equivalent expression for the DAG is



(a) ((a + b) *c) *(b*(c – a))

(b) a + (b*c – a)

(c) (a + (b*c))*((b*c) – a)

(d) a*(a + b * c) – a

11. Intermediate code generation phase gets input from

(a) Lexical analyzer

(b) Syntax analyzer

(c) Semantic analyzer

(d) Error handling

12. Activation record does not contain the

(a) Access link

(b) Symbol link

(c) Control link

(d) None of these

13. Give the quadruple form for –(a+b)/c*d.

(A) (1){+, a, b, t1}
(2){-, t1, , t2}
(3){/, t2, c, t3}
(4){*, t3, d, t4}

(B) (1){*,c,d,t1}
(2){+, a, b, t2}
(3){-, t2, , t3}
(4){/, t3, t1, t4}

(C) (1){+, a, b}
(2){-, (1)}
(3){/, (2), c}
(4){*, (3), d}

(D) (1){+, a, b, t1}
(2){-, t1, , t2}
(3){*, c, d, t3}
(4){/, t2, t3, t4}