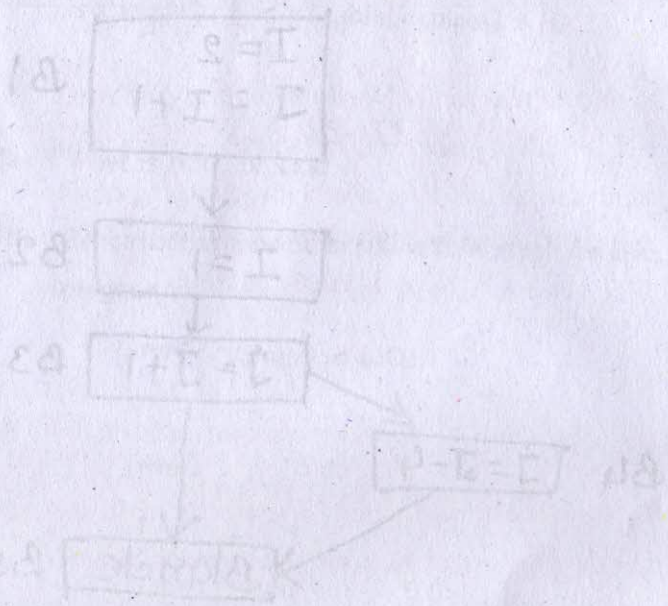

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322612(22)

B. E. (Sixth Semester) Examination, April-May 2019

(Old Scheme)

(CSE Branch)

COMPILER DESIGN

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

***Note** : In all question part (a) is compulsory. In remaining part (b), (c) & (d) attempt any* **two** *parts. Part (a) carry 2 marks and remaining parts (b), (c), (d) each carries 7 marks.*

Unit - I

1. (a) What do you mean by preprocessor?

(b) Explain the phases of compiler Design.

(c) Write the difference between single pass and multipass compilers.

(d) What do you mean by Transition Diagram? Explain transition diagram for relational operator, identifiers and numbers?

Unit - II

2. (a) Write, what Syntax Analysis Can not Do?

(b) Write difference between predective Parser and shift reduce Parser?

(c) $E \rightarrow E + T / T$

$T \rightarrow T * F / F$

$F \rightarrow (E) / id$

find first ( ) and follow ( ) and construct the predictive parser table and also check that the given string $w = id * (id + id)\ \phi$ is successfully parsed or not.

(d) Construct CLR parsing table for given grammer :

$S \rightarrow L = R$

$S \rightarrow R$

$L \rightarrow * R$

$L \rightarrow id$

$R \rightarrow L$

Unit - III

3. (a) What is syntax directed definition?

(b) What is attribute? Write difference between S-attributed and L-attributed?

(c) Write quadruple, triple and indirect triple representation of the given expression :

$$A = -(a+b) * (c+d)$$

(d) Define DAG? Construct DAG for given expression:

$$a = b * - c + b * - c$$

Unit - IV

4. (a) Define activation records?

(b) Explain the allocation strategies in detail?

(c) What do you mean by the organization of storage? Explain in detail?

(d) Explain symbol table with it's contents? Why their is a need for symbol table, explain?

Unit - V

5. (a) What is basic blocks?

(b) Construct basic block and draw flow graph for given program :

```
sum = 0 ;
i = 1;
while  i ≤ 10 do
{
 sum = sum + a [2 * i];
  i = i + 1;
}
  Average = sum / i ;
```

(c) Consider the given graph and compute the following:

(i) Compute GEN ( ) and Kill ( ) for each block.

(ii) Compute IN and OUT for reaching definition.

(iii) Compute UD chairs.

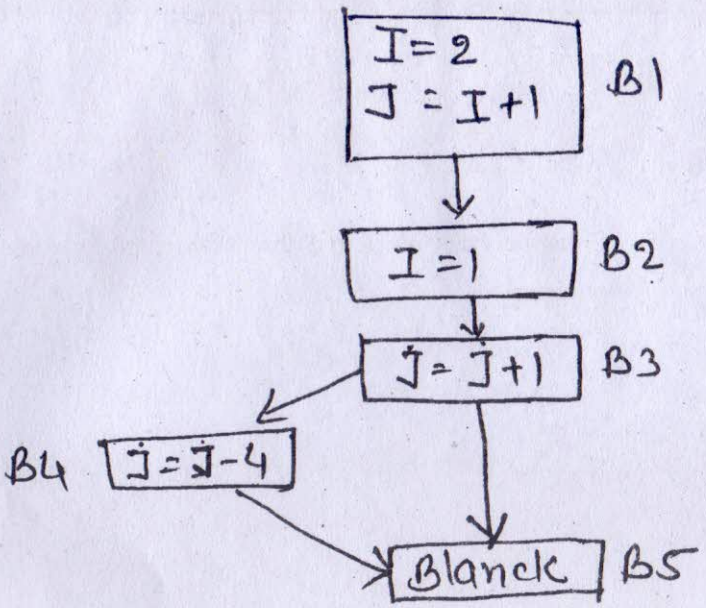

Fig.

(d) What are the issues in the design of code generator?