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Subject :- Compiler
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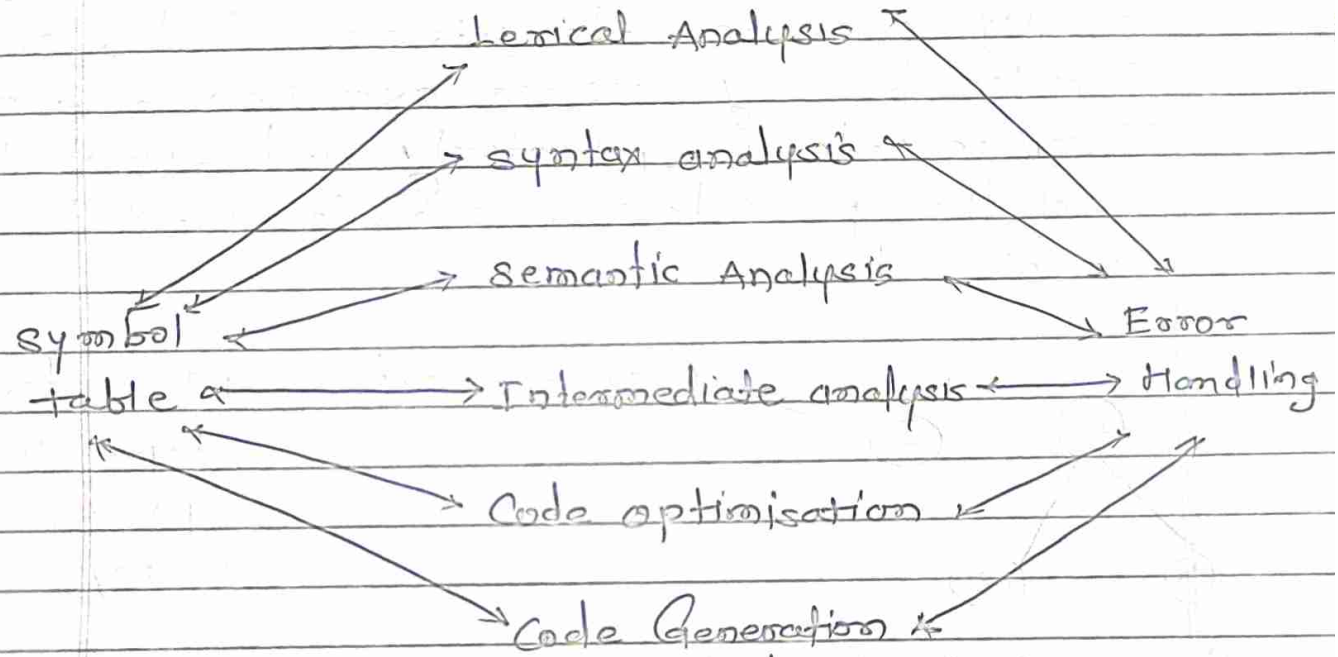
Q1) List and explain different type of phase of Compiler.

Ans :-



Compiler is use to convert highlevel language into machine ~~learning~~ language.

a] Lexical Analysis :-

Its phase of Compiler which is use for token Generation In this phase of compiler each and every statement scan and token gets generated the syntax For token gets generated is token id class

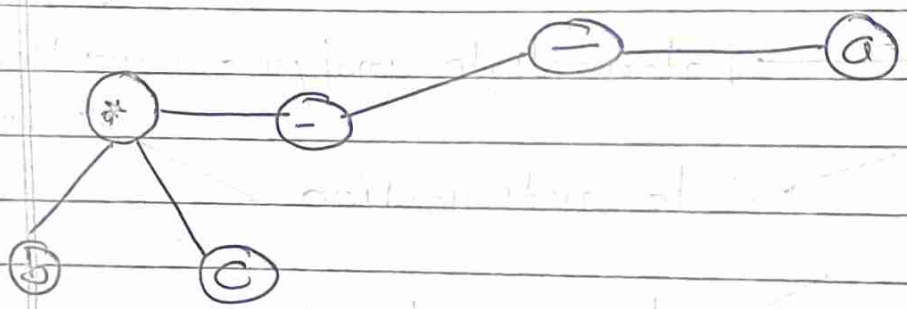
ex :- int a, b;
Float c;

a # integer

b # integer
c # float

b) syntax Analysis :- In this phase of compiler source code is checked syntacally and it there is any error its need to be solved at compiled time.

c) semantic Analysis :- In this phase of Compiles the meaning of source code gets checked this phase of Compiler basically use for exception handling
- If source code is syntantically and symantically correct then parse tree is generate parse tree.
a = b * c - d



parse tree diagramatic representation of any expression

d) Intermediate Code generation :-
In this phase of Compiler different type of Intermediate Code gets generated like. positive Triples Quadrupees syntax data transition data etc

e) Code optimisation :.
In there phase of Compliers Code gets optimize so it is take less time for execution and less memory for storage
ex : loop optimization dead code Elimination

Constant removal induction Variable elimination.

f] Code generation:- this is last phase of compiler where target code generated In phase Compiler portion memory allocation.

Q2) Type of Casting assining values to Variable to and so on.

→ # symbol table.

This table is iese to store different result. of lexical and syntax Analysis the structure of symbol table is as follows.

id	name	type	Address	Bytes
id1	a	Integer	2000	Int = 2
id2	b	Integer	2002	Float = 4
id3	c	decimal	2004	

Error handling:-

- This mechanism of Compiler Contains different error list and Error handing routines.
+ lexical analysis phase can have error token does not formed
+ syntax Analysis indentation not proper or semicolumn missing.
+ semantic Analysis indentation Error Index out of bond.
+ Intermediate code representation Code not reached.
+ Code generation issue related to register

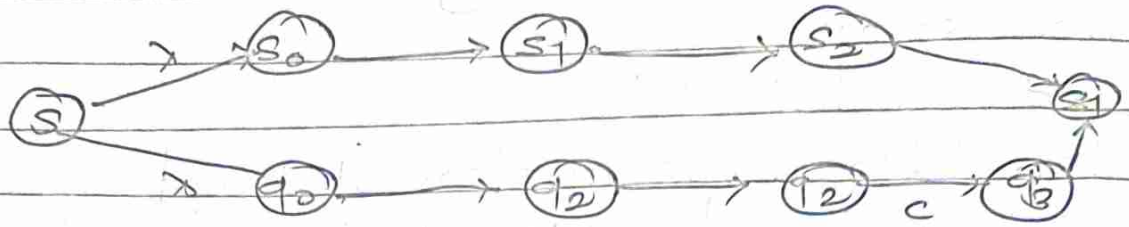
```
int a, b;
c = 10;
```

Variable 'c' not declared

Q2) Draw transition diagram for given regular express.

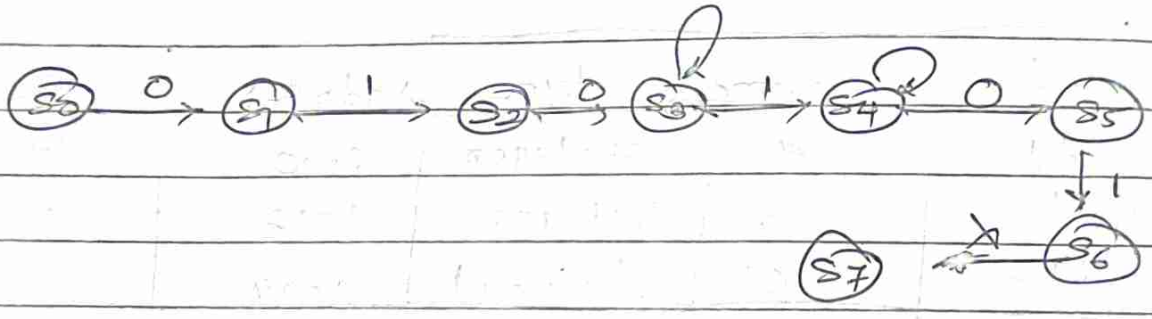
a] a*bc + abc

→



b) 0|0|1 * 10 * 0|1

→



Q3] parse of string a*b+c using shift-reduce parser.

→

stack	I/p	Action
	a*b+c $	—
a	* b+c $	shift
E	* b+c $	shift
E*	b+c $	reduce
E*b	+c $	shift
E*E	+c $	shift
E	c $	reduce
E+	$	reduce
E+c	$	shift
E+E	$	shift
E	$	accept.

04) Check whether grammer is LL(1) or not

$E \rightarrow E+B \mid E*B \mid B$

$B \rightarrow 0 \mid 1$

→ First (E) = {0, 1}

First (B) = {0, 1}

	0	1	$
E	$E \rightarrow E+B$ $E \rightarrow E*B$ $E \rightarrow B$	$E \rightarrow E+B$ $E \rightarrow E*B$ $E \rightarrow B$	
B	$B \rightarrow 0$	$B \rightarrow 1$	

∴ Here entries are repeated.