(9) → Statements:

D

(I) → Symbal table is accessed only during lexical is syntax analysis.

(II) → Compilers for programming languages that support recursion necessarily need heap storage for memory allocation in the run-time environment.

(III) → Errors violating the condition 'any variable must be declared before its use' are detected during syntax analysis.

True →

No one correct

(10) → $L = \{a^n \mid n \geq 0\} \cup \{a^n b^n \mid n \geq 0\}$

C

(I) → L is deterministic context-free.

(II) → L is context-free but not deterministic CFL.

(III) → L is not LL(k) for any k.

True :-

I & III only.

(11) → Consider the allocation of memory to a new process. Assume that none of the existing holes in the memory will exactly fit the process's memory requirement. Hence, a new hole of smaller size will be created if allocation is made in any of the existing holes. Which one of the following statements is True?

(C) → The hole created by best fit never larger than hole created by first fit.

(12) Statements :-

I → A running process can move to ready state.

II → A ready process can move to running state.

III → A blocked process can move to running state.

IV → A blocked process can move to ready state.

True →

I, II & IV Correct

L3 → S

Catalogue

Sno	Pno	cost
S1	P1	150
S1	P2	50
S1	P3	100
S2	P4	200
S2	P5	250
S3	P1	250
S3	P2	150
S3	P5	300
S3	P4	250

Suppliers

Sno	Sname	Location
S1	M/S Rajal	Delhi
S2	M/S Balaji	Bangalore
S3	M/S Premium	Chennai

Parts

Pno	Pname	Part_spec
P1	Table	Wood
P2	Chair	Wood
P3	Table	Steel
P4	Almirah	Steel
P5	Almirah	Wood

```
SELECT  S.sno, S.sname
From    suppliers S, catalogue C
WHERE   S.sno = C.sno AND
        cost > (SELECT AVG (cost)
                FROM catalogue
                WRERE pno = 'P4'
                GROUP BY pno);
```

225

No of rows

→ 4 rows

14 ⇒ Many one relationships of a weak entity set in an entity-relationship diagram?

(A)

↳ Diagmod with double/bold border.

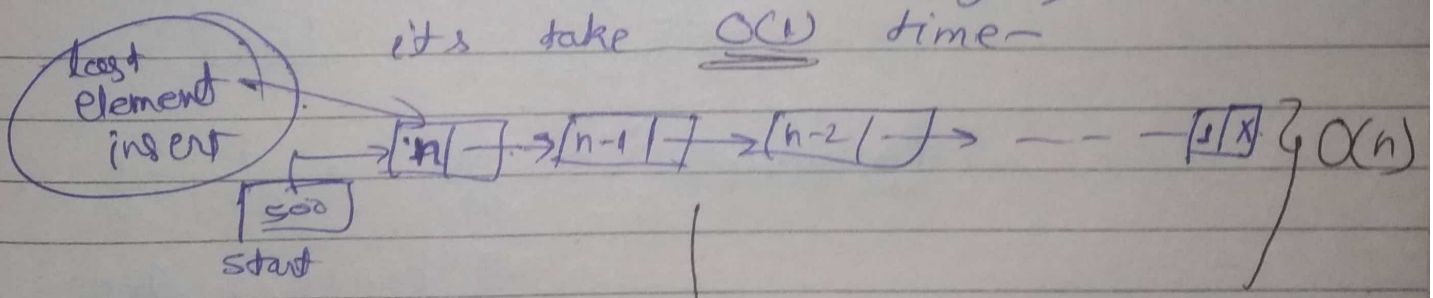
15 ⇒

16 ⇒ Worst case time complexity of an interer n elements into empty linked-list Linked-List in sorted order —

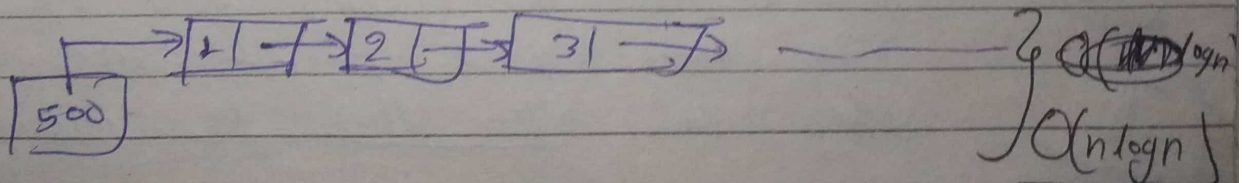
(B)

Sol^n

insert element at begining - it's take O(1) time-



Apply - Merge - Sort



Sorted

Total — O(n log n)

17) 0.125

R be the set of all binary relations on the set $\{1, 2, 3\}$. Suppose relation is chosen random from R.

Probability = ?(relation is reflexive).

Sol^n

$R = \{1, 2, 3\}$

$n = |R| = 3$

No. of relations $= 2^{n^2} = 2^{3^2} = 2^9$

$= 512$

No. of reflexive relation $= 2^{n^2 - n}$

$= 2^{3^2 - 3}$

$= 2^6$

$= 64$

Probability $= \frac{2^6}{2^9} = \frac{1}{2^3} = \frac{1}{8}$

$= 0.125$ Ans

18) Let G be a group of 35 elements. Then the largest possible size of subgroup of G other than G itself.

Sol^n

Size of group $= O(G) = 35$

By Lagranges' $O(H) \mid O(G)$; H is subgroup

$d(H) \rightarrow 1, 5, 7$ or 35

19) Multiplexer is placed b/w a group of 32 registers

5 register move to accumulator: minimum number of select line need to be multiplexer?

Sol^{n}

No. of register = 32

n:1 = 32:1

No. of select line to multiplex = m

$m = \log_2 n$

$m = \log_2 2^5$

$m = 5$ Ans

20) m i/p line, n o/p line for decoder, min (m+n) = ?

1 KB RAM

1039

Sol^{n} 2^{10} o/p to map 1KB RAM

we need 10×2^{10} decoder

$m = 10$, $n = 2^{10} = 1024$

$m + n = 1039$ Ans