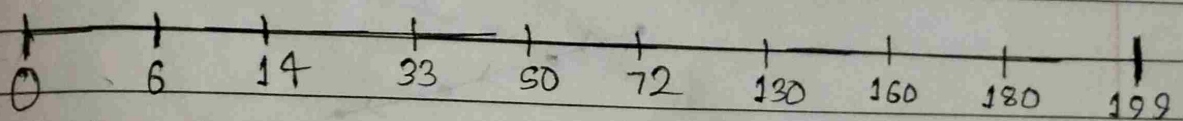
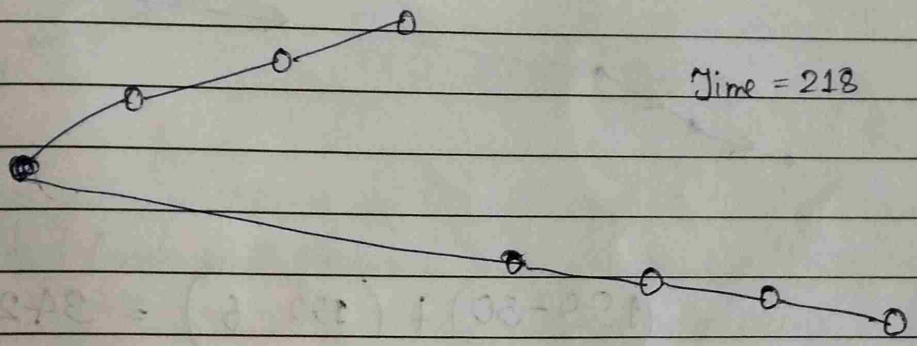
SSTF (Shortest Seek Time First)

→ SSTF says, full-fill the request which is the nearest.



in one



1) Average response time ~~increase~~ decrease
2) Through put increase

Disadvantage

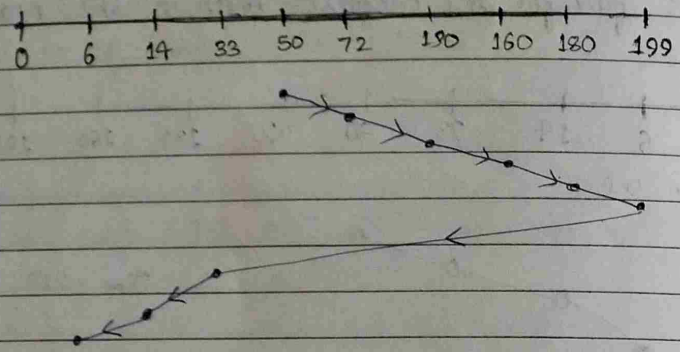
→ Overhead to calculate seek time in advance
→ Can cause Starvation for a request if it has high seek time compared to incoming request.
→ High variation of response time as SSTF favours only some request.

SCAN (Elevator) Disk Scheduling Algorithm

72, 160, 33, 130, 14, 6, 180

R/W head = 50

The arm should move "towards larger value"



$(199-50)+(199-6) = 342$

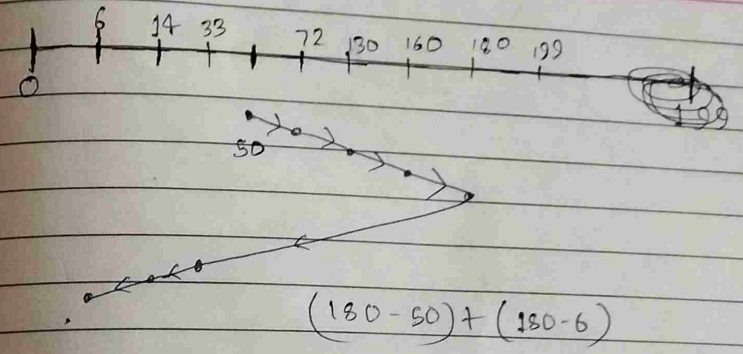
If 2ns - each head movement
and 5ns - direction change

$= 342 \times 2 + 5 = 389$ ns

Advantage
High-throughput
Low-Variance of response time
Average response time

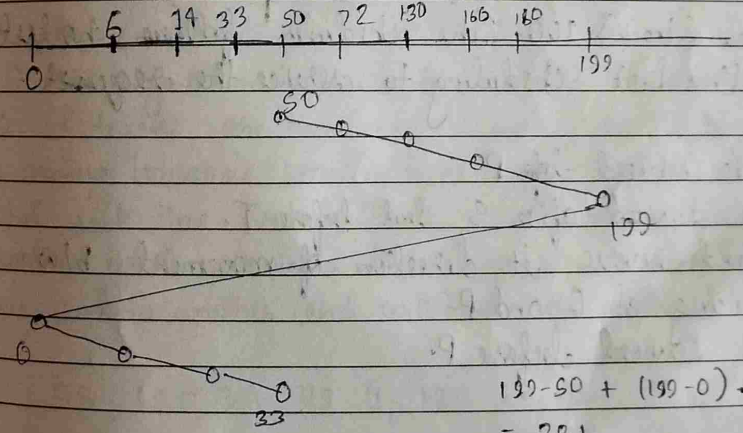
Disadvantage:
Low waiting time for locations just visited by the disk track.

★ C-~~SCAN~~ LOOK



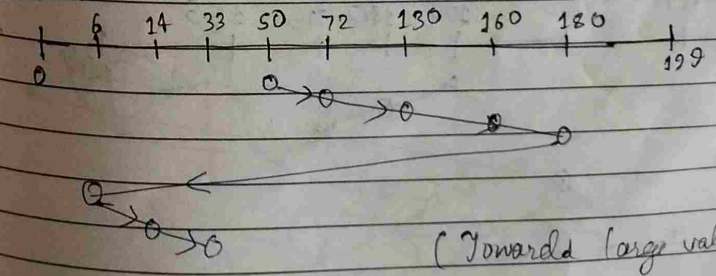
$(180-50)+(180-6)$

B
C-SCAN (Cover and print)



$199-50 + (199-0) + (33-0)$
$= 381$

C-LOOK



(Towards large value)

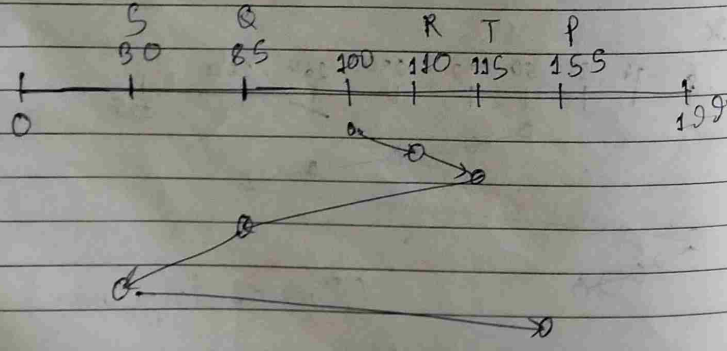
Q Consider the following five disk access request of the form (request id, track no) that are present in the disk scheduler queue at a given time (P,115) (Q,85), (R,110) (S,30) (T,155). Assume head positioned at cylinder (track) 100. The Scheduler follows shortest Seek time first Scheduling to service the request.

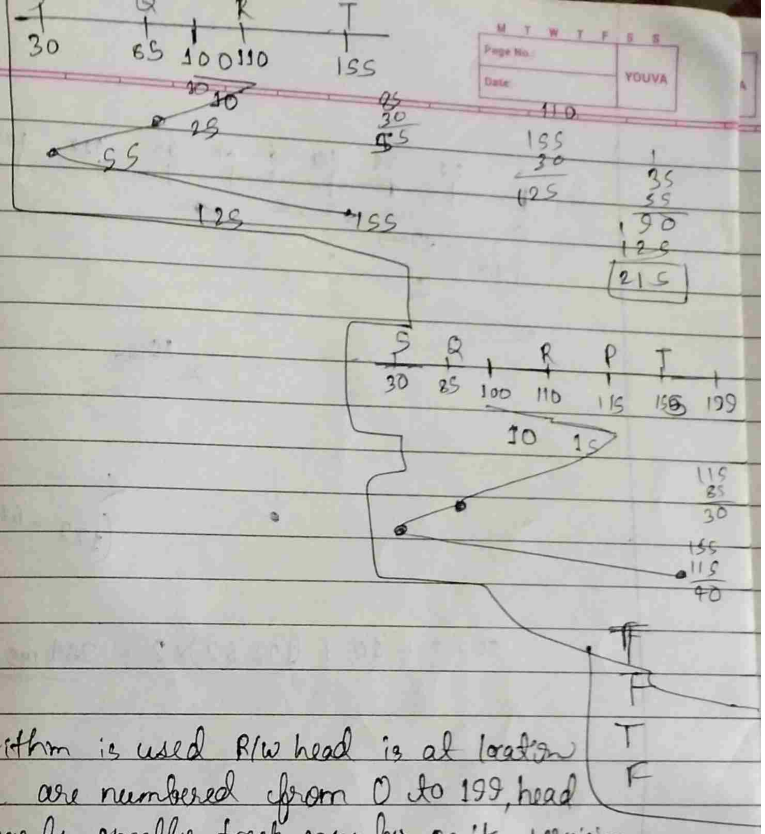
T (a) T is serviced before P

F (b) Q is serviced after S, but before T.

T (c) R/W head reverse its direction of movement b/w servicing of Q and P.

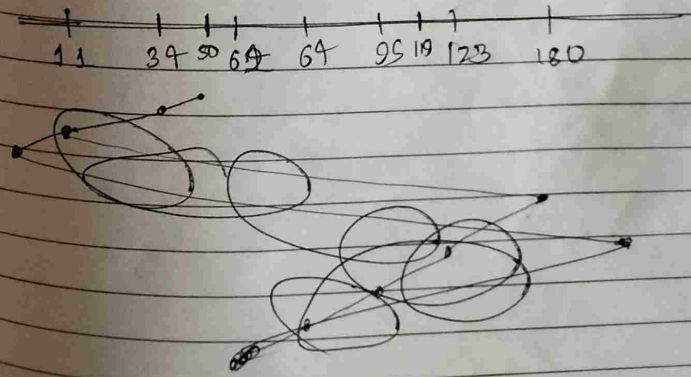
T (d) R is serviced before P.

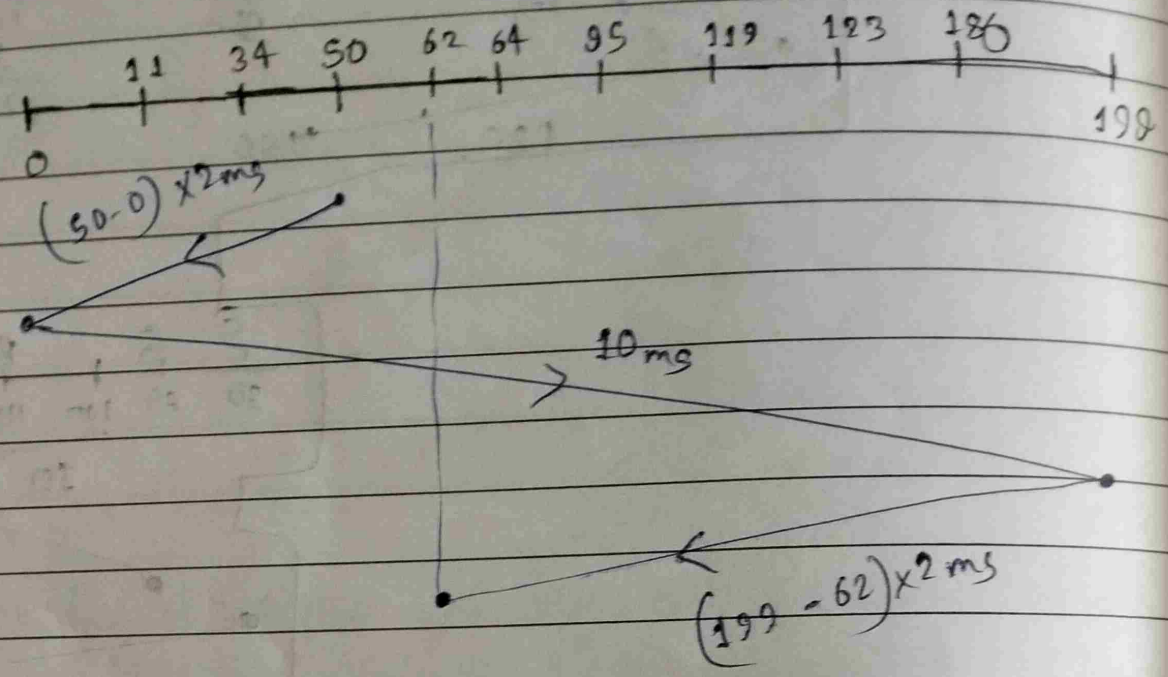




Q Consider
CSCAN algorithm is used R/W head is at location 50. If tracks are numbered from 0 to 199, head is moving towards smaller track number on its servicing. Total seek time needed 2ms, time to move one track to another while servicing these requests. (Assuming moving one end to another end will take 10ms

95, 180, 34, 119, 11, 123, 62, 64





$50 \times 2 + 10 + (199-62) \times 2 = 384\ ms$