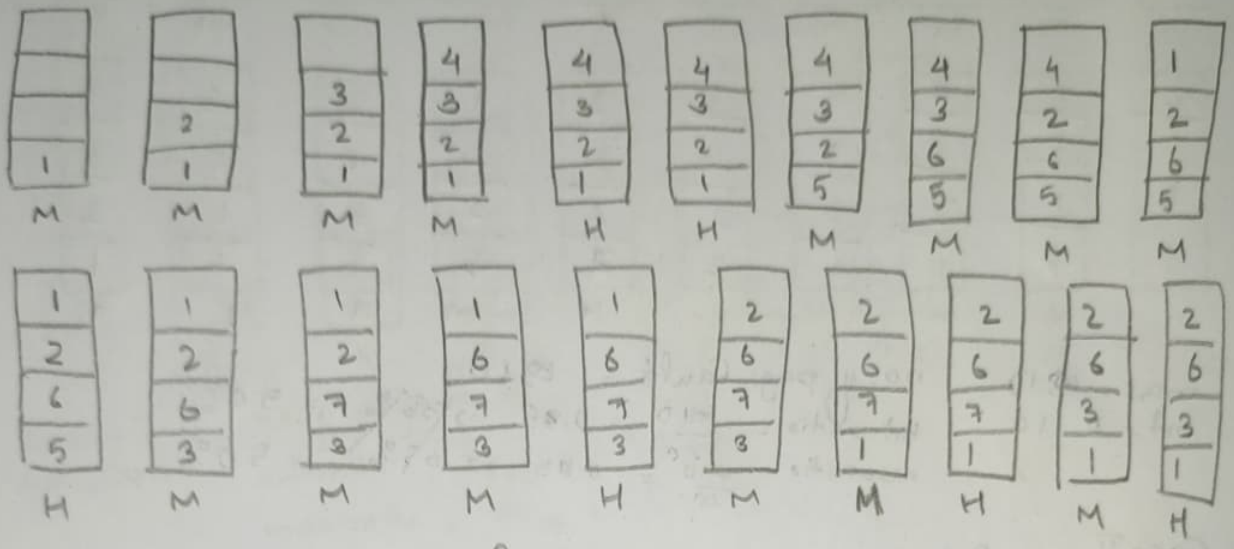
Q1. Case 1:

Ref. string : 1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6

no: of frames : 4

i) FIFO

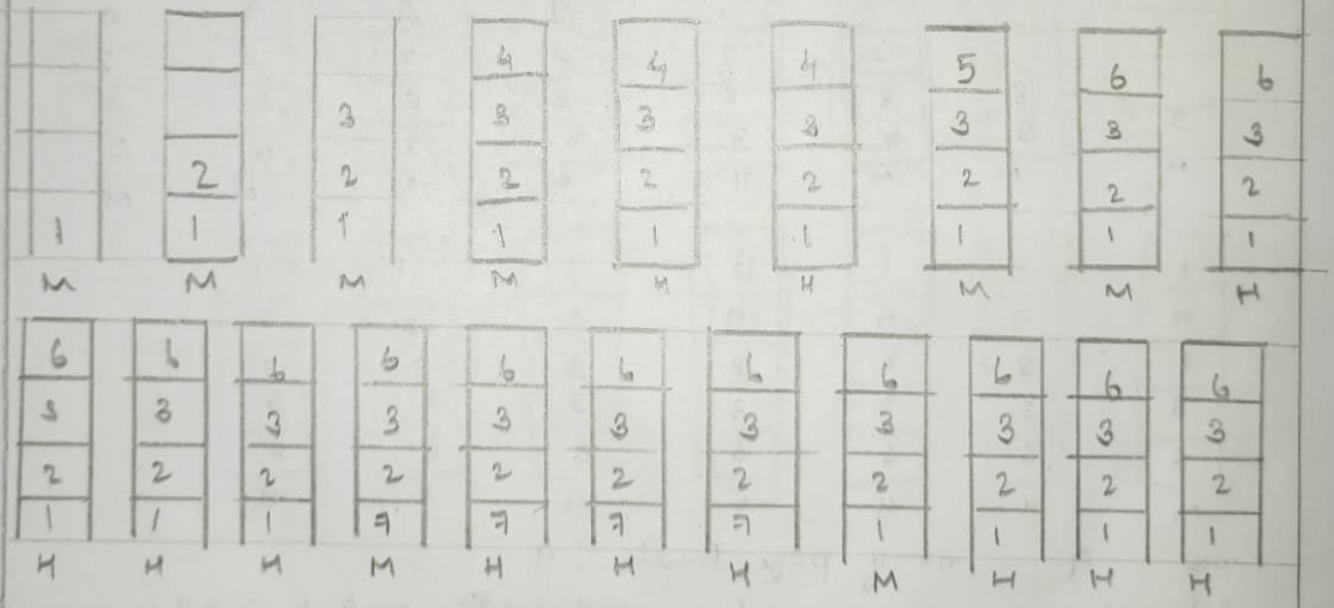


M = 14 ∴ no: of page faults = 14

H = 6 hit ratio = $\frac{6}{20}$ = 0.3 i.e. 30%.

miss ratio = $\frac{14}{20}$ = 0.7 i.e. 70%.

ii) Optimal

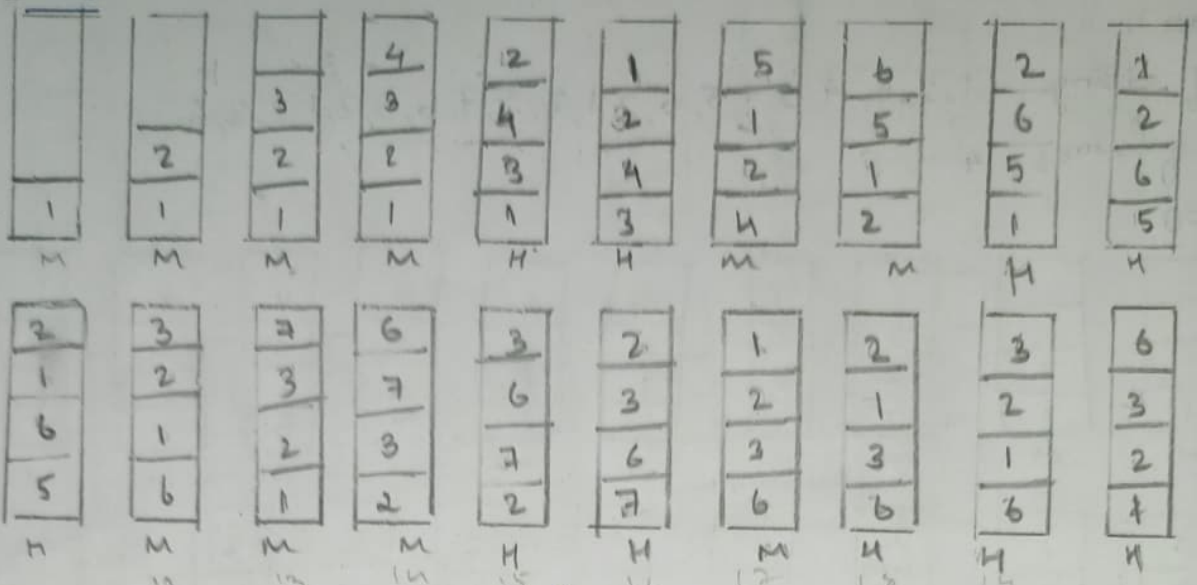


M = 8 no. of page Fault = 8

H = 12 hit ratio = $\frac{12}{20}$ = 0.6 => 60%

miss ratio = $\frac{8}{20}$ = 0.4 => 40%

ii) LRU



miss = 10
hit = 10

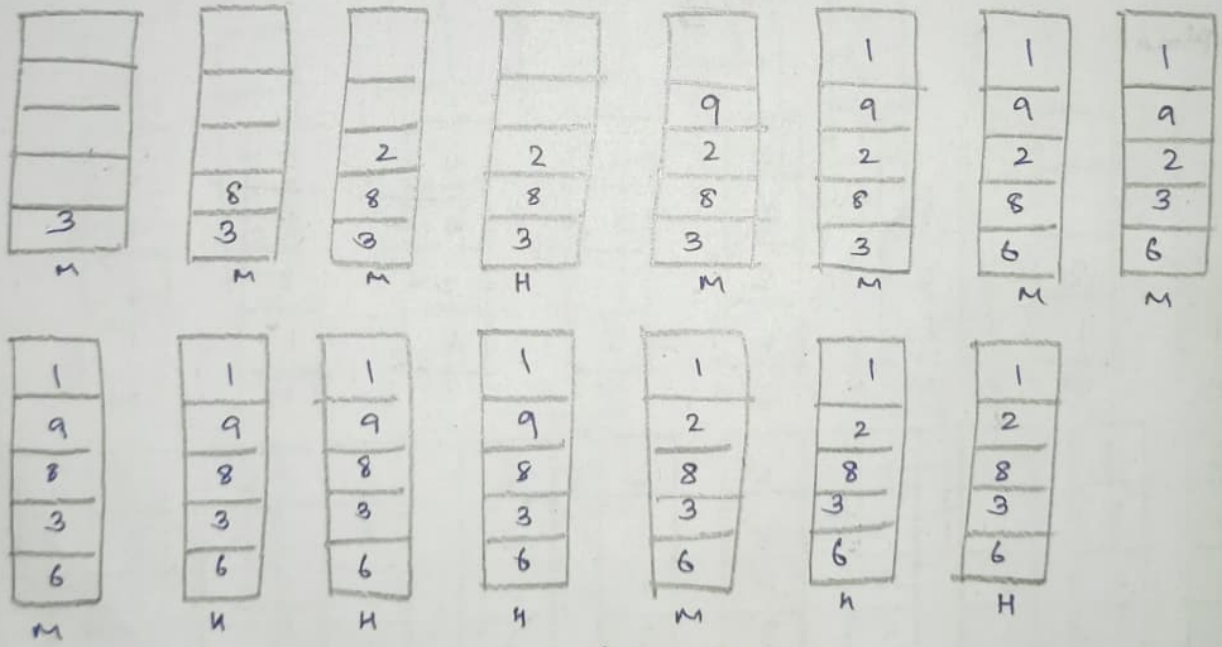
no. of page fault = 10

hit ratio = $\frac{10}{20}$ = 0.5 => 50%

miss ratio = $\frac{10}{20}$ = 0.5 => 50%

2. Case II : Ref. String : 3, 8, 2, 3, 9, 1, 6, 3, 8, 9, 3, 6, 2, 1, 3.
no. of frames : 5.

i) FIFO



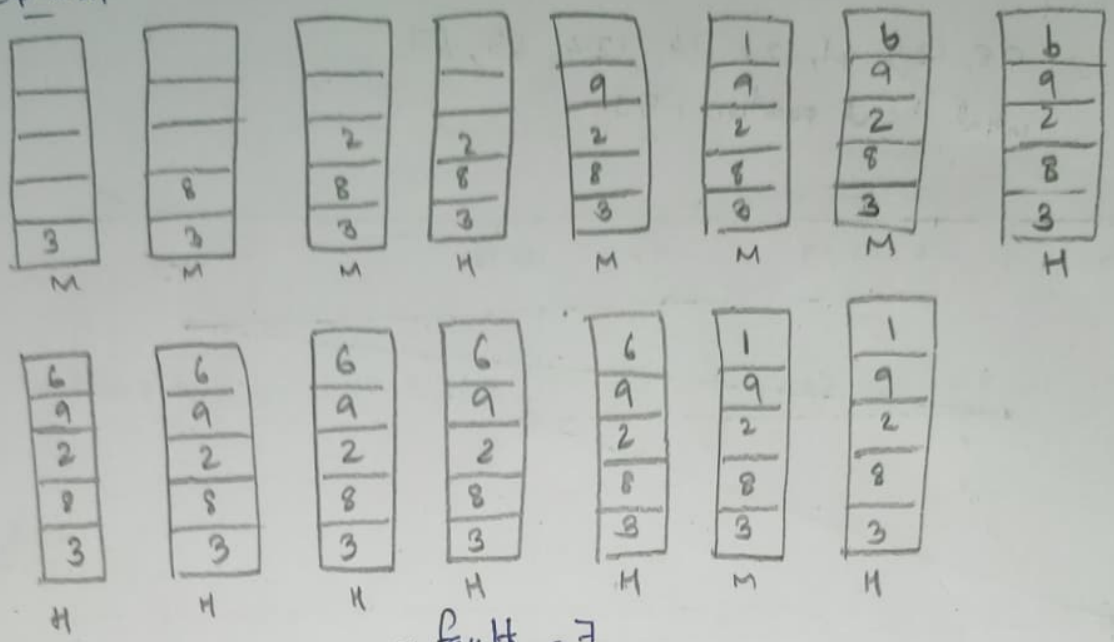
miss = 9
hit = 6

no. of page faults = 9

hit ratio = $\frac{6}{15}$ = 0.4 ≈ 40%

miss ratio = $\frac{9}{15}$ = 0.6 ≈ 60%

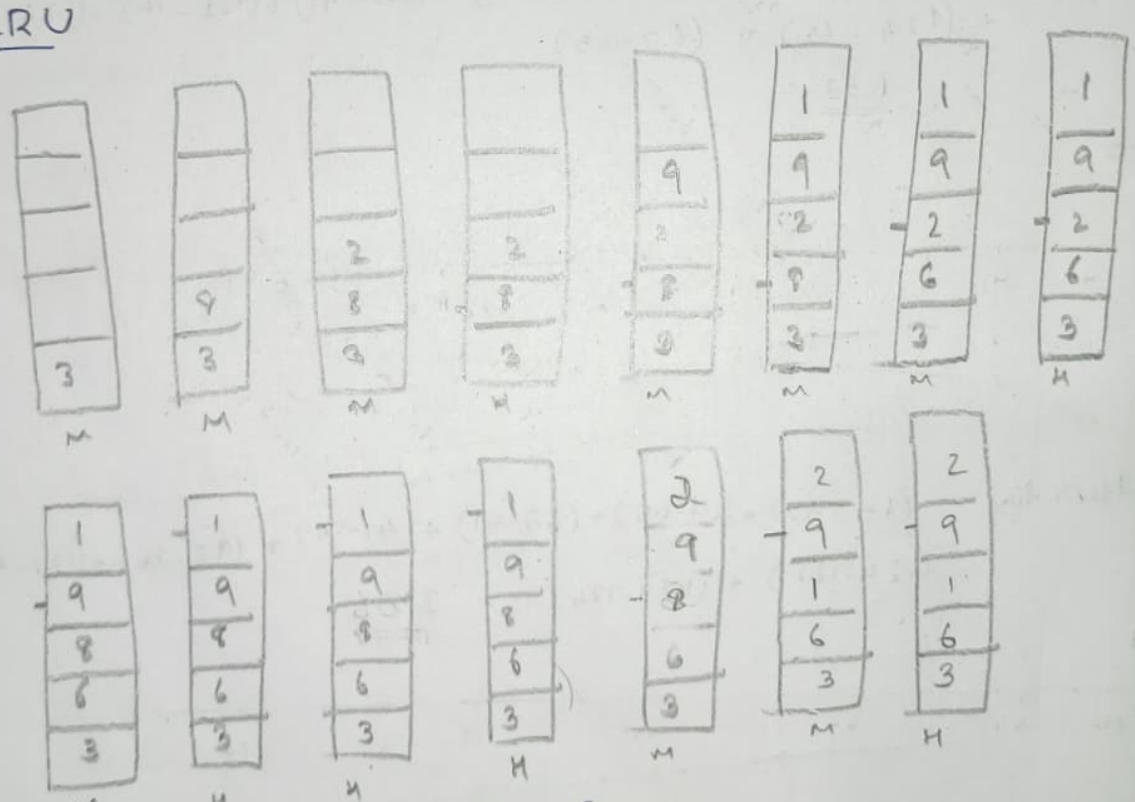
ii] Optimal



miss = 7
hit = 8

no: of page faults = 7
hit ratio = 8/15 => 53.33%
miss ratio = 7/15 = 46.66%

iii] LRU



hit = 6
miss = 9

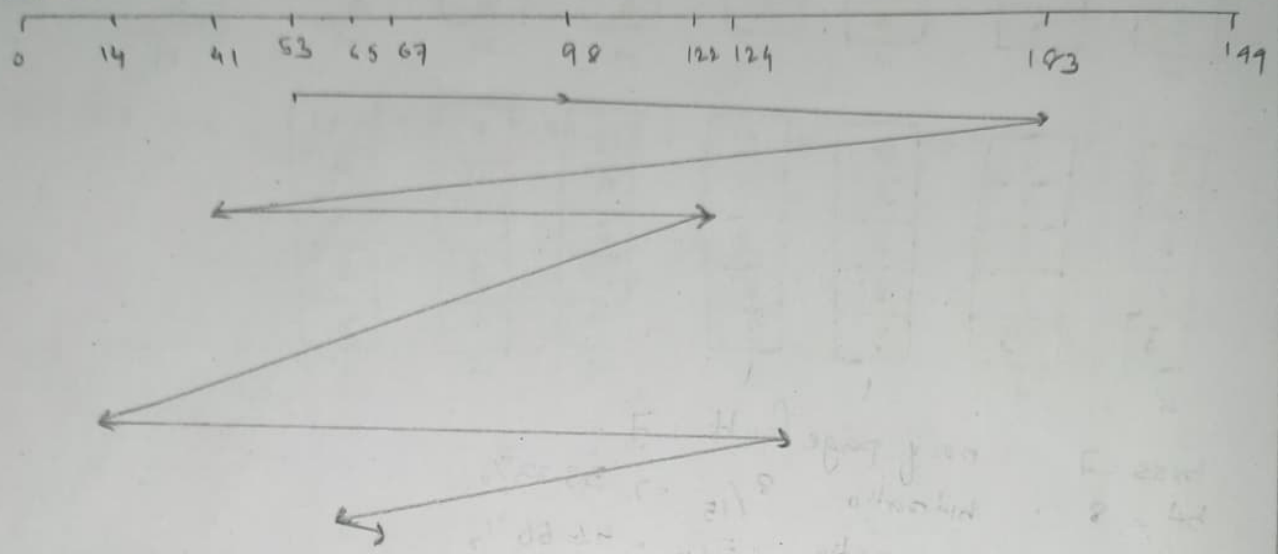
page faults = 9
hit ratio = 6/15 = 40%.
fault ratio = 9/15 = 60%.

Q2. 0 - 199

case 1 : 98, 183, 41, 122, 14, 124, 65, 67

initial head position : 53

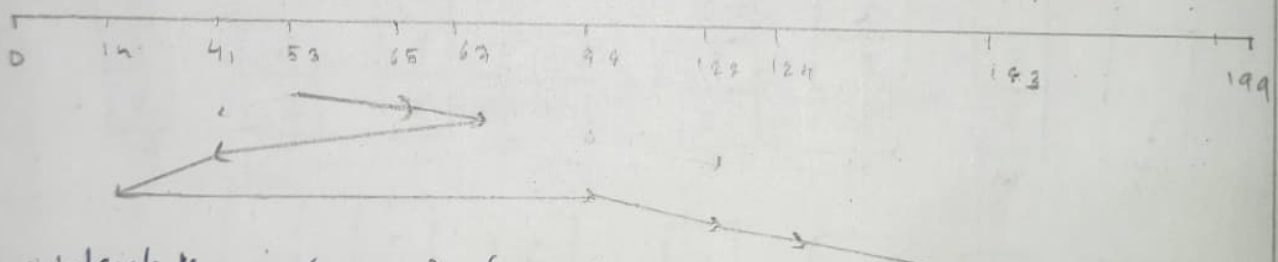
i] FCFS



Total Seek time = (98-53) + (183-98) + (183-41) + (122-41) + (122-14) + (124-14) + (124-65) + (67-65)

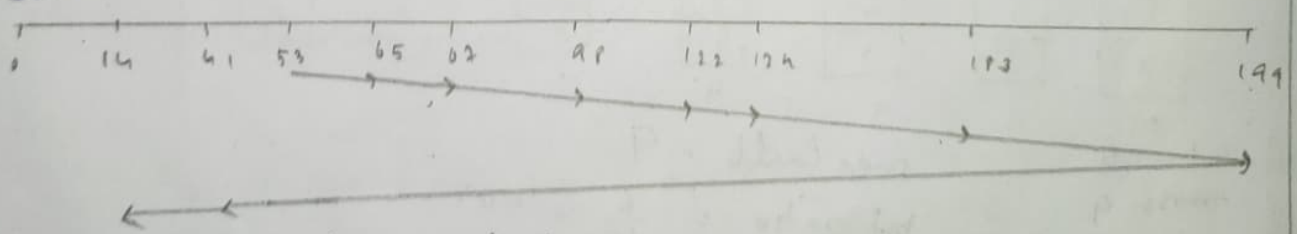
= 632

ii] SSTF



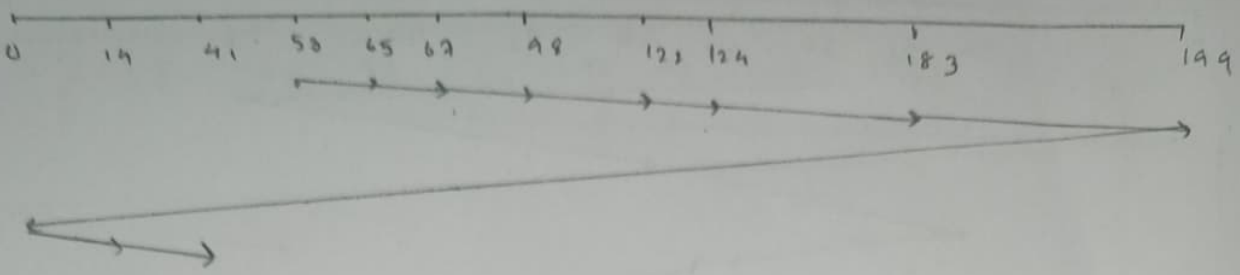
Total seek time = (65-53) + (67-65) + (67-41) + (41-14) + (98-14) + (122-98) + (124-122) + (183-124) = 236

iii] SCAN



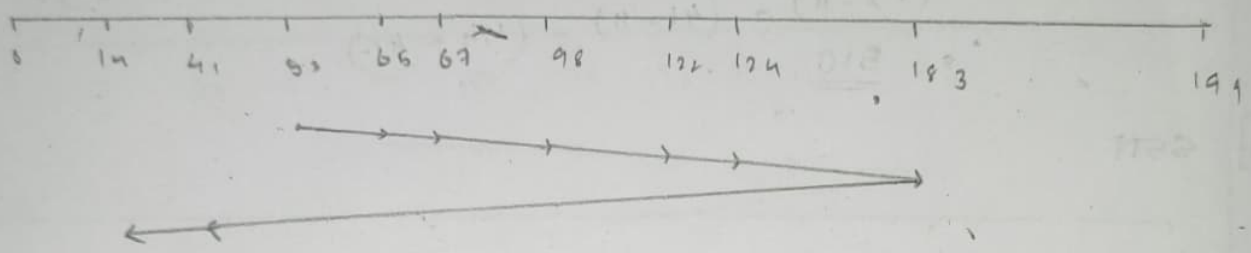
Total seek time = (199-53) + (199-14) = 331

iv] CSCAN



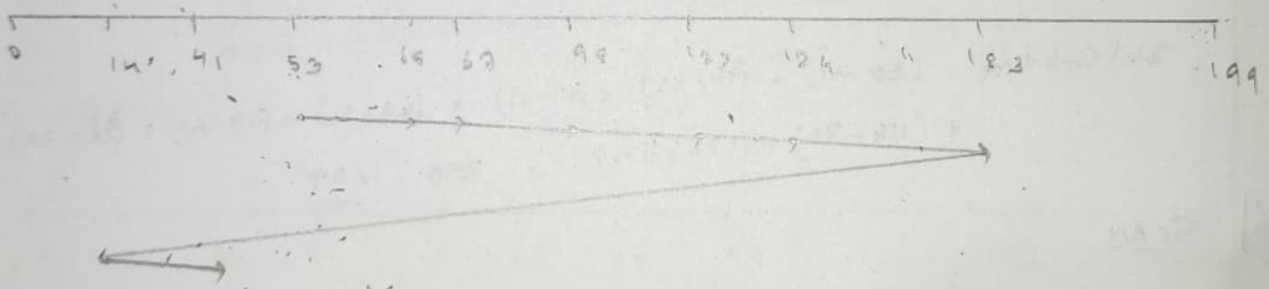
. Total seek time = (199-53) + (199-0) + (41-0) = 386

v] LOOK



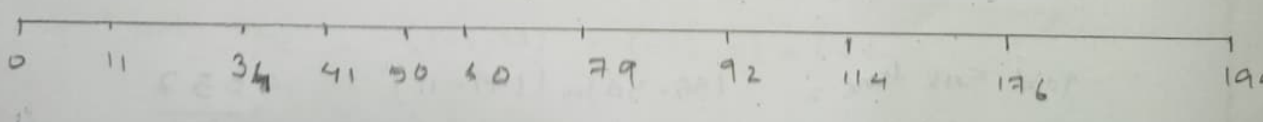
Total seek time = (183-53) + (183-14) = 299

vi] CLOOK

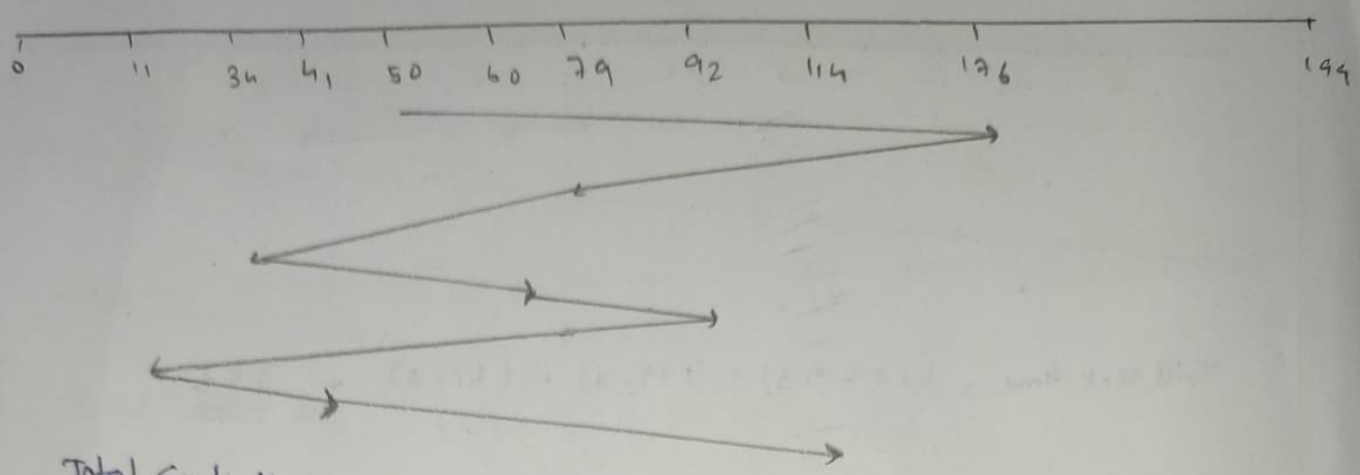


Total seek time = (183-53) + (183-14) + (41-14) = 326

case II : 176, 79, 34, 60, 92, 11, 41, 114
intial head position : 50

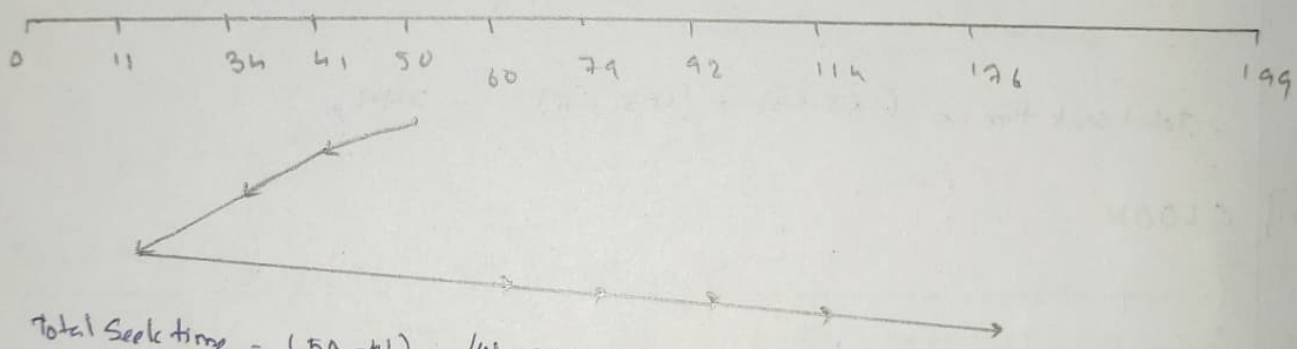


9] FIFO



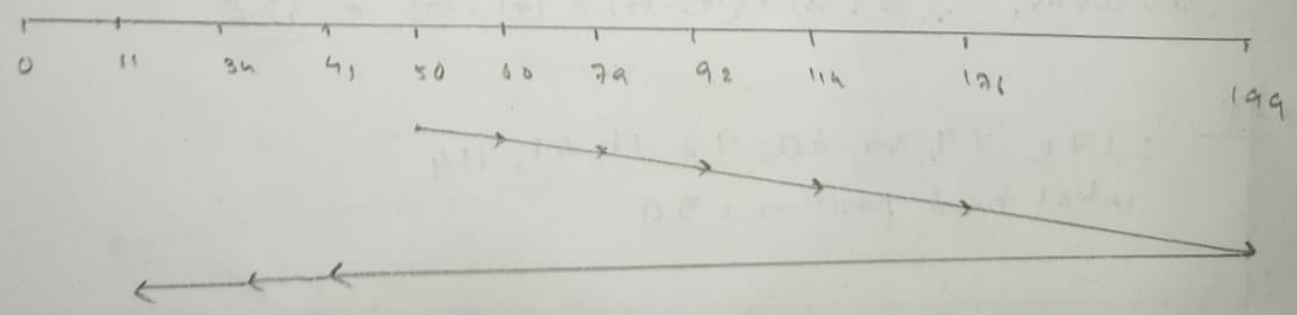
Total Seek time = (176-50) + (176-79) + (79-34) + (60-34) + (92-60) +
(92-11) + (41-11) + (114-41)
= 510

ii] SSTF



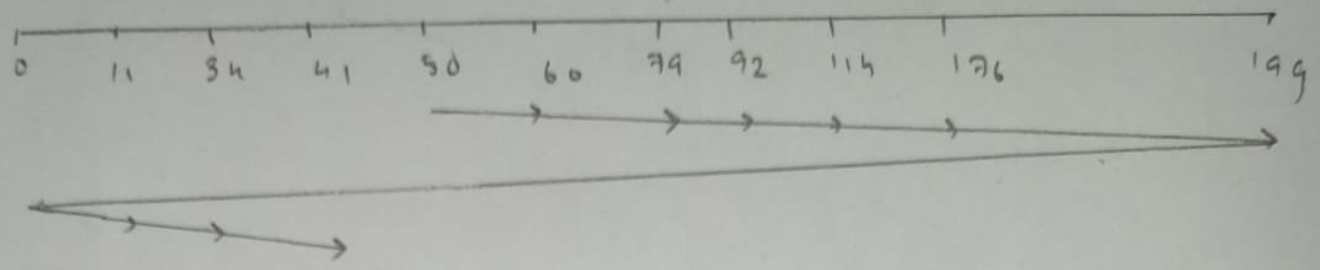
Total Seek time = (50-41) + (41-34) + (34-11) + (60-11) + (79-60) + (92-79)
+ (114-79) + (176-114) = ~~350~~ 204

iii] SCAN



Total Seek time = (199-50) + (199-11) = 337

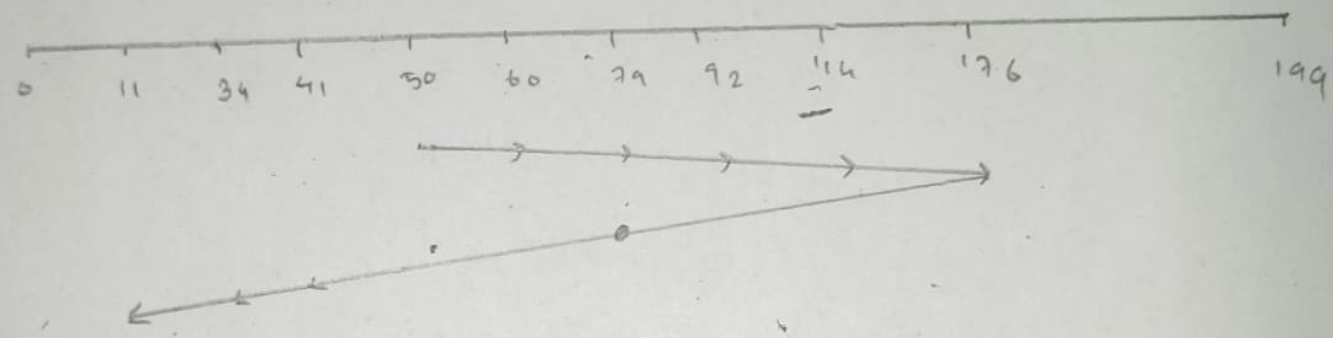
iv] C SCAN



Total Seek time = (199 - 50) + (199 - 0) + (41 - 0)

= 389

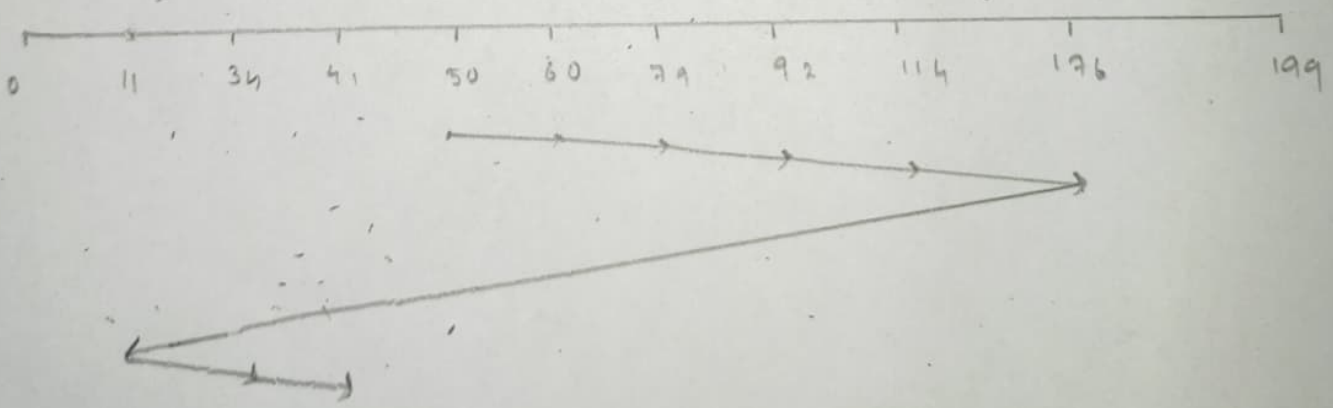
v] LOOK



Total Seek time = (176 - 50) + (176 - 11)

= 291

vi] C-LOOK



Total seek time = (176 - 50) + (176 - 11) + (41 - 11)

= 321