**2.** suppose that a disk has 200 cylinders , numbered 0 to 199 . the drive is currently serving a request at cylinder 53 , and the previous request was at cylinder 25. The queue of pending requests , in FIFO order is

98 , 183 , 37 , 122 , 14 , 124 , 65 , 67

Starting from the current head position, show the total distance ( in cylinders) that the disk arm moves to satisfy all the pending requests for each of the following disk-scheduling disciplines?

1. FCFS
2. SSTF
3. LOOK
4. C-LOOK
5. Scan
6. C-Scan

**ANSWER**

1. **FCFS**

0 14 37 53 65 67 98 122 124 183 199

53 98

183

37

122

14

65 124

67

***The total distance:***

(98-53)+(183-98)+(183-37)+(122-37)+(122-14)+(124-14)+(124-65)+(67-65)= **640 Cylinders**

***In another way:***

**FCFS:** 53 , 98 , 183 , 37 , 122 , 14 , 124 , 65 , 67

**ii. SSTF**

0 14 37 53 65 67 98 122 124 183 199

65

37 67

14

98

122

124

183

***The total distance:***

(65-53)+(67-65)+(67-37)+(37-14)+(98-14)+(122-98)+(124-122)+(183-124)= **236 Cylinders**

**In another way:**

**SSTF:** 53 , 65 , 67 , 37 , 14 , 98 , 122 , 124 , 183

**iii. Scan**

0 14 37 53 65 67 98 122 124 183 199

65

67

98

122

124

183

199

37

14

**The total distance:**

(65-53)+(67-65)+(98-67)+(122-98)+(124-122)+(183-124)+(199-183)+(199-37)+(37-14)= **331 Cylinders**

***In another way:***

**Scan:** 53 , 65 , 67 , 98 , 122 , 124 , 183 , 199 , 37 , 14

**Iv. Look**

0 14 37 53 65 67 98 122 124 183 199

65

67

98

122

124

183

37

14

**The total distance**

(65-53)+(67-65)+(98-67)+(122-98)+(124-122)+(183-124)+(183-37)+(37-14)= **299 Cylinders**

***In another way***

**LOOK:** 53 , 65 , 67 , 98 , 122 , 124 , 183 , 37 , 14

**V. C-Scan**

0 14 37 53 65 67 98 122 124 183 199

65

67

98

122 124

183 199

0 14

37

***The total distance***

(53-65)+(67-65)+(98-67)+(122-98)+(124-122)+(183-124)+(199-183)+( 14-0)+(37-14)=

**In another way:**

**C-Scan:** 53 , 65 , 67 , 98 , 122 , 124 , 183 ,199 , 0 ,14 , 37

1. **C-LOOK**

0 14 37 53 65 67 98 122 124 183 199

**The total distance:**

(65-53)+(67-65)+(98-67)+(122-98)+(124-122)+(183-124)+(183-14)+(37-14) = **322 Cylinders**

**In another way**

**C-LOOK:** 53 , 65 , 67 , 98 , 122 , 124 , 183 , 14 , 37