CS302:

Assignment10 Report

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1   Answer of Question 1

READ/WRITE data time = (1)seek time + (2)rotational latency + (3)transfer time

2   Answer of Question 2

Request queue is 70, 30, 90, 120, 60, 20. Head: 100.

Rotational latency: $12000r/min = 0.2r/ms = 5ms/r$, $\frac{5ms/r}{2} = 2.5ms/r$

6 requests reading randomly distributed sector each time: $2.5 \times 6 = 15ms$

Seek time = Distance × 1ms

2.1. FIFO

(a) **Access Sequence:** 70, 30, 90, 120, 60, 20

(b) **Required Time:** $(30 + 40 + 60 + 30 + 60 + 40) \times 1 + 15 = 275ms$

2.2. SSTF

(a) **Access Sequence:** 90, 70, 60, 30, 20, 120

(b) **Required Time:** $(10 + 20 + 10 + 30 + 10 + 100) \times 1 + 15 = 195ms$

2.3. SCAN

(a) **Access Sequence:** 120, 90, 70, 60, 30, 20

(b) **Required Time:** $((20 + 79) + 109 + 20 + 10 + 30 + 10) \times 1 + 15 = 293ms$

2.4. C-SCAN

(a) **Access Sequence:** 120, 20, 30, 60, 70, 90

(b) **Required Time Serving Requests:** $((20 + 79) + (20) + 10 + 30 + 10 + 20) \times 1 + 15 = 204ms$
   Required Time with All Movements: $((20 + 79) + (199 + 20) + 10 + 30 + 10 + 20) \times 1 + 15 = 403ms$