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## Class Assignment - 2

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F2

Q.1

Average Seek time = 12 ms

Rotation Rate = 7200 RPM

Transfer Rate = 150 MB/s

Sector Size = 512 bytes

Controller overhead = 2 ms

Average Disk access time for Sector

Avg Seek + avg rot delay + transfer time + controller overhead

$$12 \text{ ms} + \frac{0.5}{7200/60} + \frac{512/1024}{150} + 2 \text{ ms}$$

$$12 + \frac{60^{30}}{7200 \times 240} + \frac{1}{300} + 2$$

$$14 + \frac{1}{240} + \frac{1}{300}$$

$$14 + 0.0041 + 0.0033$$

$$14.0074 \text{ ms}$$

Q.2 Arm is at cylinder 20, so the service order = 18, 25, 35, 39, 8, 5, 3

$$\text{Seek time} = (20-18) + (25-18) + (35-25) + (39-35) + (39-8) + (8-5) + (5-3)$$

$$= 2 + 7 + 10 + 4 + 31 + 3 + 2 = 59$$

$$\text{Total Seek time} = 59 * 5 = 295 \text{ msec}$$

Q.3 Total tracks = 100  
 Sequence = 45, 20, 90, 10, 50, 60, 80, 25, 70

Initial position of R/W head is on 50

Next Served	Distance Travelled
50	0
45	5
60	15
70	10
80	10
90	10
25	65
20	5
10	10
Total distance	= 130

If simple scan is used

Next served	Distance
50	0
60	10
70	10
80	10
90	10
45	65
25	20
20	5
10	10
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Total distance =	140

Less distance travelled in SSTF  
 $= 130 - 140$   
 $= 10$

c) 10