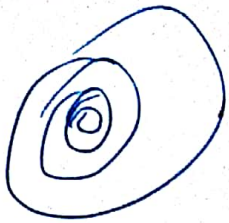
Block size 8 kB
Rot speed : 10000 rpm
Avg seek time : 4 ms
T. rate : 130 MB/s
Track to track seek time : 0.2 ms
Avg. track size : 512 kB



Q.)
Avg rotational delay ?
Transf. time ?

$$t_{tr} = t_{transf} = \frac{8\ kB}{130\ MB/s} = \frac{8\ kB}{133120\ kB/s} = 0.06\ ms$$

$$t_r = Avg.\ rot = \frac{0.5}{10000} = 3\ ms$$

Ans)

$$t_a = 4\ ms + 3\ ms + 0.06\ ms = 7.06\ ms$$

nonclean:

$$t = t_a \cdot 20 = 141.2\ ms = 0.14\ s$$

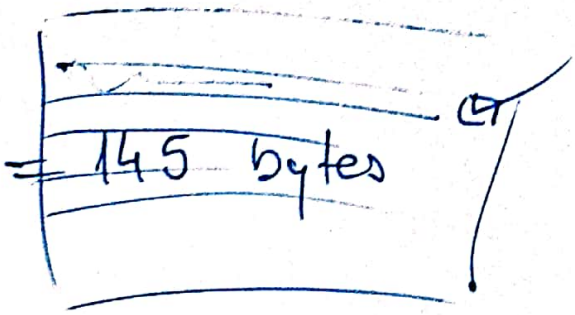
sequential:

$$t = t_s + t_r + 20 \cdot t_{tr} + 0.2\ ms = 4\ ms + 3\ ms + 1.2\ ms$$
$$= 8.2\ ms = 0.0082\ s$$

c)

file: stududs 40000 fixed-length records

name (120 bytes)
birthday (8 bytes)
mrr (12 bytes)
program (4 bytes)
del. marker (1 bytes)



record size = 145 bytes ⇒ R

d) B = 8kB

$bfr = \frac{B}{R} = \frac{8kB}{145B} = 55,17 \approx 55$

Unused space : $B - (bfr * R) = 25$ byte

$\frac{40000 \times 145}{55} = 728$ blocks

$\frac{40000 \times 145}{8kB} = 725$

c) BLOCKS IN TRACK = $\frac{\text{TRACK SIZE}}{\text{BLOCK SIZE}} = \frac{512kB}{8kB} = 64$

OF TRACKS = $\frac{\text{FILE SIZE}}{\text{BLOCKS IN A TRACK}} = \frac{}{} = 11,3$

= 12 TRACKS

Consecutive:

$t = t_s + t_r + 728 \cdot t_{tr} + 12,1 \cdot t_{t2t}$

$t = 4ms + 3ms + 43,68 ms + 2,4 ms$

$t = 53,08 ms = 0,05308 s$

*11 avergt t/2

random:

$t = 728 \cdot t_a$ *for averge t/2

$t = 9,14 s$

f)

$\log_2(728) = 9,51 = 10$ Blocks

$10 \cdot 7,06 ms = 70,6 ms$ *

*Hawker.pdf