Assignment - 1

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1. Given, each sector is of 512 bytes ~~each~~, and each track have 1000 such sectors.

⇒ Capacity of each track = 1000×512 bytes.

Each surface have 10,000 tracks.

⇒ Capacity of each surface = $10,000 \times 1000 \times 512$ bytes

Each disk have 10 such surfaces.

⇒ Capacity of the disk = $10 \times 10,000 \times 1000 \times 512$ bytes

$= 512 \times 10^8$ bytes.

Or it is approximately equal to 51.2 GB.

2. First, let's calculate the ~~th~~ average time taken to read or write into disc ~~from~~/to main memory.

~~Transfer time~~

Rotational Latency -

Given, the disc rotates at 10,000 RPM

⇒ It makes one rotation in $\frac{60}{10,000}$ s = 6ms.

⇒ Average rotational latency = $\frac{6}{2}$ = 3ms.

Transfer time -

Let us take each block is of size 16384 bytes.