

计组15

姓名：邵宁录

学号：2018202195

第一题

1

$$\text{存储面} = 2 \times 6 = 12$$

2

$$40 \times (33 - 22)/2 = 220$$

3

$$\begin{aligned}\text{总存储容量} &= \pi \times 22 \times 400 \times 40 \times (33 - 22)/2 \times 12 \\ &\approx 72948480 \text{ bit} \\ &\approx 8.7 \text{ MB}\end{aligned}$$

4

$$\begin{aligned}\text{传输速率} &= (\pi \times 22 \times 400)/(60000/3600) \\ &\approx 1657.92 \text{ bit/s}\end{aligned}$$

第二题

1

$$\begin{aligned}\text{存储容量} &= 4 \times 275 \times 12288 \\ &= 13516800 \text{ B} \\ &\approx 12.89 \text{ MB}\end{aligned}$$

2

$$\begin{aligned}\text{最高位密度} &= 12288/(\pi \times 230) \\ &\approx 17.0 \text{ B/mm} \\ \text{最低位密度} &= 12288/[\pi(230 + 2 \times 275 \div 5)] \\ &\approx 11.5 \text{ B/mm}\end{aligned}$$

3

$$\begin{aligned}\text{传输速率} &= 12288 / (60000 / 3000) \\ &= 614.4 \text{ } B/ms\end{aligned}$$

4

$$\begin{aligned}\text{平均等待时间} &= 60000 / 3000 / 2 \\ &= 10 \text{ } ms\end{aligned}$$