

Quiz 4A

رقم الشعبة: 2

الرقم التسلسلي:

الاسم:

Instructions: Time **10** minutes. Closed books and notes. No calculators. Please answer all problems in the space provided. **No questions are allowed.**

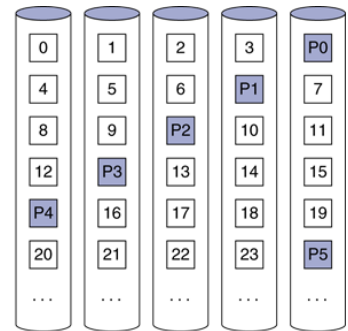
<Good Luck>

Q1. Consider the RAID 5 storage system shown to the right below.

a) How many reads and writes are needed to modify Block 3?

2 reads and 2 writes: need to read the old data and the old P0 and write new data and new P0.

<2 marks>



b) Assume that the contents of the first 5 blocks are as shown in the table below (only the first byte of each block is shown). Complete this table when Block 3 is updated to the byte 0xFF? (Show your work clearly)

Block	0	1	2	3	P0
Old	0x00	0x11	0x22	0x88	0xBB
New	0x00	0x11	0x22	0xFF	0xCC

New P0:

$$\begin{aligned}
 P0' &= (0x88 \text{ xor } 0xFF) \text{ xor } 0xBB \\
 &= 0x77 \text{ xor } 0xBB \\
 &= 0xCC
 \end{aligned}$$

<3 marks>

Q2. Rewrite the following code to run on two processors using shared-memory programming. Assume that the two processors have IDs Pn = 0 and Pn = 1.

```
for (i = 0; i < 1000; i = i + 1)
    C[i] = A[i] * B[i];
```

```
for (i = 500*Pn; i < 500*(Pn+1); i = i + 1)
    C[i] = A[i] * B[i];
```

<5 marks>