

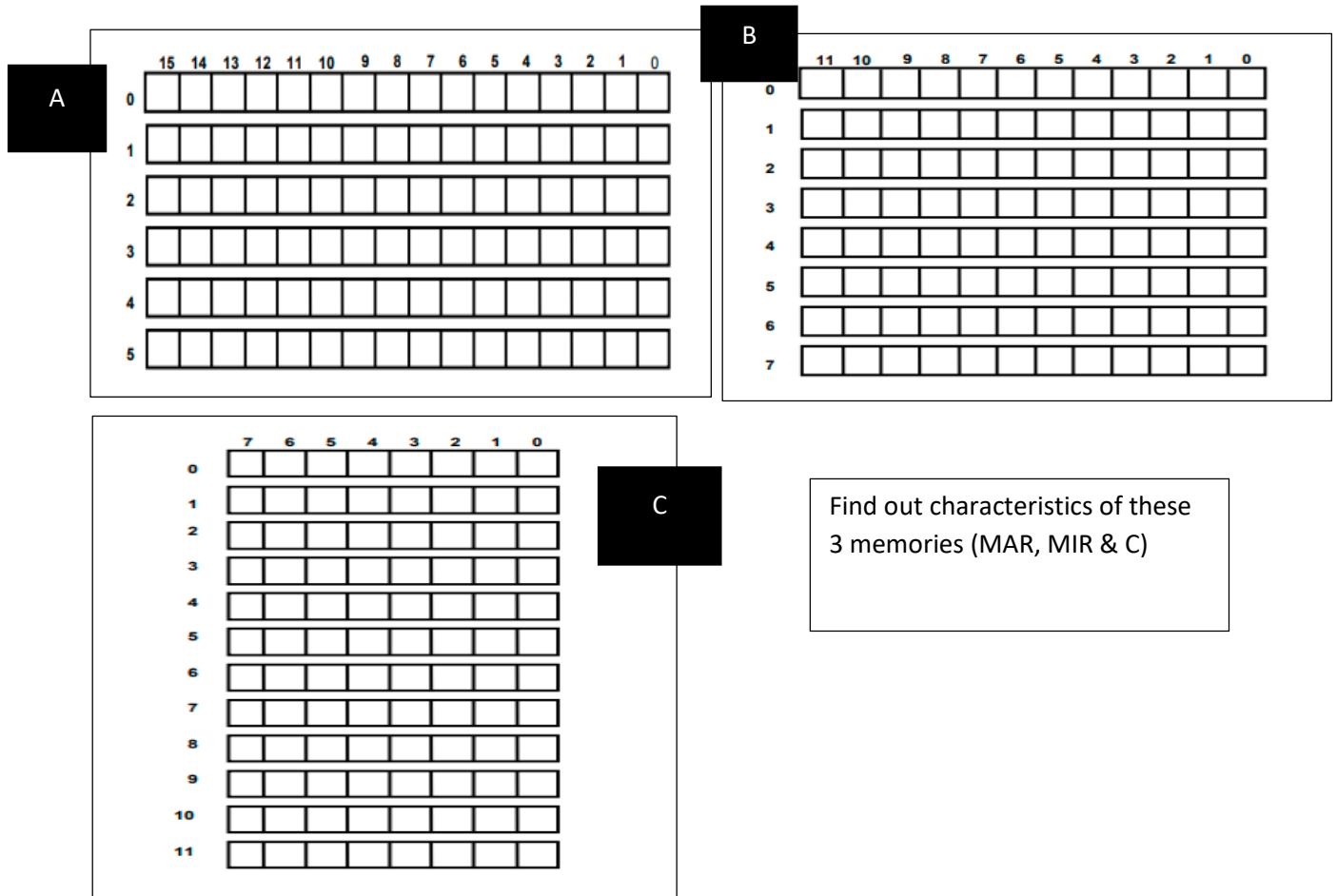
ASSIGNMENT 2

MEMORY & STORAGE

EXERCISE 1: MEMOR BUILDING

Let's consider a memory box which can addresses 16 words of 8 bits.

1. Find the MAR (Memory Address Register) size
2. Find the MIR (Memory Information Register) size
3. Give the capacity of this memory in words & bits

EXERCISE 2: MEMORY ORGANISATION

EXERCISE 3: MEMORY BITRATE

Memory cycle measures required time for transfer requests to and from memory. Memory word sizes vary from one device to another. Transferred number of bits varies also. Then, it is difficult to compare performances of two machines. Transfer ratio or bitrate allows to characterize by precision two different memories. To find out the binary throughput or bitrate of a given computer we can use the following relationship:

$$BR = \frac{\text{Memory Word Size (MWS)}}{\text{Memory Cycle Size (MCS)}}$$

1. Demonstrate that for a same MCS, if the throughput doubles, then the BR doubles too
2. Application: Compute the BR of two memories of 36 and 18 MWS and a similar memory cycle *1.2 ms*
3. Demonstrate that if the MCS is divided by 2, then the bitrate doubles
4. Find out the bitrate of the 18 MWS when its MCS is *0.6 ms*.
5. Make a brief conclusion