Assignment Topic: Memory Basics **Date: 22nd Jan 2021**

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Fill the below answers and send this document to kernelmasters.lab1@gmail.com .

1. What is Microprocessor? What are the microprocessor operations?

Ans: Microprocessor is a combination of combinational circuit and memory element mainly consist of arithmetic logic unit, control unit and register array to perform certain operation.

Microprocessor operation:

- Memory read
- Memory write
- Input and output device read
- And input and output device write

2. What is the difference between address lines and data lines? How to define a Memory capacity?

Ans:

- Address line transfer address bits from microprocessor to memory. It is unidirectional bus.
- Data lines transfer data to perform operation. It is Bidirectional bus

Memory capacity

Memory capacity defined in the range of **Byte.**

3. How many memory locations can be addressed by a microprocessor with 14 address lines?

Ans:

With 14 address lines 16k memory location can be addressed by the microprocessor.

4. How many address lines are necessary to address two megabytes (2048k) of memory?

Ans:

21 Address lines are required to address two megabytes(2048k) of memory.

5. Specify the number of registers and memory cells in a 128 x 4 memory chip.

Ans:

- 128 4-bit Registers are required to build 128x4 memory chip.
- 512 memory cells are in 128 x 4 memory chip.

6. How many bits are stored by a 256 x 4 memory chip? Can this chip be specified a 128byte memory?

Ans:

- 256 x 4 memory chip can store upto 1024 bits.
- In terms of memory size this chip can be specified as 128byte.

7. What is the memory word size required in an 8085 system?

Ans: 8-bit

8. If the memory chip size is 2048 x 8 bits, how many chips are required to make up 16K-byte memory?

Ans: 8 similar 2048x8 memory chips are required to make upto 16k-byte memory.

9. If the memory chip size is 1024 x 4 bits, how many chips are required to make up 2k (2048) bytes of memory?

Ans: 4 similar 1024x4 memory chip required to make up 2kbytes of memory.

10. If the memory chip size is 256 x 1 bits, how many chips are required to make up 1K (1024) bytes of memory?

Ans: 32 similar 256x1 memory chip are required to make upto 1kbytes of memory.