PHY-553
Memory Devices and Microprocessors

M.Sc. PHYSICS (MSCPHY-12/13/16/17)

2nd Year, Examination-2019

Time: 3 Hours   Max. Marks: 80

………………………………………………………………

Note:- This paper is of Eighty (80) marks divided into two (02) Section A and B. Attempt the question contained in these sections according to the detailed instructions given therein.

Section-A

(Long Answer Type Question)

Note:- Section - A contains five (05) long answer-type questions of fifteen (15) marks each. Learners are required to answer any three (03) questions only.   **(3×15=45)**

1. How a MOSFET can be used as a switch? Explain in detail.

2. (a) Discuss the semiconductor memory architecture.

   (b) Describe how memory is organized for 8086 up?

3. Discuss the architecture of 8086 up and describe logical signals in minimum mode.

4. (a) Write an assembly language program of 8085 to till the RAM area from 2500H to 25FFH with a byte 33H.

   (b) Discuss the memory mapped input output operations for the transfer of data from microprocessor to I/O device and vice-versa.

5. (a) Using the functional block diagram of 8255 A PPI. Explain its details.

   (b) Discuss how 8253 can be used as a rate generator.

Section-B

(Short Answer Type Question)

Note:- Section-B contains eight (08) short answer type questions of seven (07) marks each. Learners are required to answer any five (05) questions only. **(5×7=35)**

1. Explain the working of CMOS logic gates.

2. A semiconductor memory chip is specified as 2k by 8.

   (a) How many words can be stored on this chip?

   (b) What is word size?

   (c) How many total bits can this chip store?

3. Draw the read and write timing diagrams for 8086 up in minimum mode.

4. Draw and explain the interrupt control circuit for 8085 microprocessor.

5. What is D latch. Make a block diagram of a 4-bit register using D Latch.

6. Discuss the classification of operations in 8085 up.

7. Describe how the interfacing of 8259A with 8085A microprocessor is done.

8. What is microprocessor? Explain the architecture of a microprocessor.