## PHY-553 MEMORY DEVICES AND MICROPROCESSORS

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

2<sup>nd</sup> Year, Examination-2020

Time Allowed : 2 Hours Maximum Marks : 80

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

## Section-A

(Long Answer Type Questions)

Note: Section-'A' contains Five (05) long answer type questions of twenty (20) marks each. Learners are required to answer any two (02) questions only. (2×20=40)

S-55/PHY-553

P. T. O.

- (a) The memory location 2050 H holds the data byte F 7 H. Discuss the instructions to transfer the data byte to the accumulator using three different opcodes : MOV, LDAX and LDA.
  - (b) Discuss the subroutines and stakes in assembly language programing.
- (a) How a bipolar junction transistor (BJT) can be used as a switch?
  - (b) Draw and discuss the architecture of 8086. Mention the job of BIU and EV.
- (a) Discuss the role of address buffer and address data buffer in the architecture of 8085 μp.
  - (b) Write an assembly language program of 8085 to find the logical AND and logical OR of 26 H and 39 H. Store the result in 2500 H and 2501 H.
- (a) Mention various modes of operations of 8255 A and explain its working in BSR mode.

2

S-55/PHY-553

- (b) What is the difference between 8085, 8086,80286 and 80386 microprocessors.
- 5. (a) Explain the classification of semiconductor memory.
  - (b) Draw and discuss the timing diagram of IN byte.

## Section-B

(Short answer type questions)

- Note: Section-B Contains Eight (08) short answer type questions of Ten (10) marks each. Learners are required to answer any four (04) questions only. (4×10=40)
- 1. Discuss the use of MOSFET as a logic gate.
- 2. Describe the status register of 8086.
- Discuss how 8253 can be used as a square wave generator.
- 4. Explain the manufacturing of Read only memory (ROM).
- S-55/PHY-553 3 P. T. O.

- 5. Write a program in assembly language to introduce a time delay of 1 sec using register pair. Let the system clock frequency is 3 MHz.
- 6. Describe the generation of control signals and de multiplexed address bus in 8085 microprocessor.
- 7. Explain Intel Pentium Processor and what is pro processor.
- 8. Explain branch instructions, discuss conditional and unconditional JUMP using proper examples.

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S-55/PHY-553