A–095

Total Pages : 3 **Roll No. .....**

MSCPH-522

M.Sc. PHYSICS (MSCPH)

(Memory Devices and Microprocessors)

3rd Semester Examination, 2024 (June)

Time : 2:00 Hrs. Max. Marks : 70

Note* :–** This paper is of Seventy (70) marks divided into Two (02) Sections 'A' and 'B'. Attempt the questions contained in these Sections according to the detailed instructions given therein. ***Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

Section–A

(Long Answer Type Questions) 2×19=38

***Note* :–** Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any *two* (02) questions only.

1. Give the basic concept of memory interfacing with a microprocessor. Discuss register selection and data transfer. What is absolute and partial decoding of address of any register.

2. Give an overview of the priority interrupt controller 8259A. explain the execution of Interrupt service routines.

3. Discuss the memory mapped I/O. Give an schematic of memory related data transfer instruction. Differentiate between memory mapped I/O and peripheral mapped I/O.

4. What is programmable logic array (PLA) ? Make program table and give the steps required in PLA implementation.

5. How the MOSFET can be used as a switch ? Discuss the use of MOSFET as a logic gate. Give at least three logics.

Section–B

(Short Answer Type Questions) 4×8=32

***Note* :–** Section 'B' contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. Discuss the types of memory. What is memory decoding

and internal decoding ? Give a internal logical construction of a 4 × 3 RAM.

2. Discuss the different data transfer instructions used in assembly language.

3. What are synchronous counters ? Make a block diagram of 4-bit synchronous binary counters.

4. Explain the difference between IMP and CALL instruction.

5. Express the Boolean function F = $xy + x'z$ in a product of maxterm form.

6. Show the direct mehiory access operations (DMA) using schematic diagram. Give the sequence of operation of DMA.

7. What is Gray code ? Give the advantage of Gray code over binary code.

8. Explain the hardware model and programming model of 8085 microprocessor.

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