# K-422

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# MSCPH-522

## MEMORY DEVICES AND MICROPROCESSORS

M.Sc. Physics (MSCPH)

3rd Semester Examination, 2023 (Dec.)

**Time : 2 Hours]** **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)

**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.

(2×19=38)

**1.** What do you understand by sequential logic circuits? Discuss asynchronous and synchronous sequential circuits.

**2.** What is computer memory? How memory is classified and make a block diagram of general memory device? Discuss briefly EPROM.

**3.** Describe the instructions set of 8085 microprocessors. Explain instruction classifications according to their size and work with proper examples.

**4.** Give the basic interfacing concepts of I/O device with any microprocessor. Discuss device selection and data transfer. What is absolute and partial decoding of address bus?

**5.** Give the architecture of 8086 microprocessor. Make an schematic of demultiplexed address bus and control signal generation in the minimum mode.

## SECTION–B

## (Short Answer Type Questions)

**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. (4×8=32)

**1.** What do you understand by integrated circuits? What is level of integration? Discuss TTL, ECL, MOS and CMOS logic families.

**2.** What is flash memory? Explain its working principle.

**3.** What is microcomputer? Explain the organization of CPU.

**4.** Explain with the help of timing diagram the fetch and execution cycle of 'OUT' instruction.

**5.** Write a program in assembly language for the multiplication of two HEX numbers.

**6.** What is ripple counter? Explain the working of binary ripple counter.

**7.** Discuss the branch instruction and its types in assembly language.s

**8.** What is Random Access Memory? Discuss the read and write operations in a memory unit.