

PHY-553**Memory Devices and Microprocessors****M. Sc. PHYSICS (MSCPHY-12/13/16)****Second Year, Examination, 2017****Time : 3 Hours****Max. Marks : 80**

Note : This paper is of **eighty (80)** marks containing **three (03)** Sections A, B and C. Learners are required to attempt the questions contained in these Sections according to the detailed instructions given therein.

Section-A**(Long Answer Type Questions)**

Note : Section 'A' contains four (04) long answer type questions of nineteen (19) marks each. Learners are required to answer *two* (02) questions only.

1. Discuss the classification of 8085 μ p operations with proper examples. 19
2. (a) Discuss JK flip-flop and what is its short-coming ? How can it be removed ? 10
- (b) What is memory chip size ? If the chip size is 2048×8 bit, then what does it mean ? 9
3. (a) Explain the following assembly language program and find its output : 10

MVI A 00 H

MVI B 03 H

MVI C 04 H

NEXT ADD B

DCR C

JHZ Next

STA 2050 H

OUT # 02H

HTL

- (b) Make a block diagram of 4-bit memory register and explain its working. 9
4. (a) What is interrupt process in a microprocessor ?
Make a block diagram of 8259 interrupt controller and discuss its operations. 10
- (b) What is the difference between 8085, 8086, 80286 and 80386 microprocessors ? 9

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 *four* (04) questions only.

1. What is computer memory and how microprocessor communicates with memory ?
2. Make a functional block diagram of 8085 microprocessor.
3. What are the requirements of memory interfacing ? Discuss its basic concepts.
4. Discuss the architecture of 8086 μ p and describe logical signals in minimum mode.
5. Write a note on Intel Pentium processor. What are Intel-Pentium Pro-Processor.

6. Explain branch instructions. Discuss unconditional and conditional jump using proper examples.
7. Discuss the characteristics of IC's in detail.
8. Discuss the programming model of 8086 microprocessor.

Section-C

(Objective Type Questions)

Note : Section 'C' contains ten (10) objective type questions of one (01) mark each. All the questions of this Section are compulsory.

1. In 8085 μ p the number of addressing modes is :
(a) 2 (b) 3
(c) 5 (d) 4
2. Flip-flop based memory is :
(a) Semiconductor memory
(b) Magnetic memory
(c) Optical memory
(d) None of the above
3. What is the memory word size in 8085 μ p ?
(a) 4 bit (b) 4 byte
(c) 8 byte (d) 8 bit
4. Which of the following logic is fastest ?
(a) ECL (b) TTL
(c) CMOS (d) LSI

5. Third state of tristate device is :
 - (a) 0
 - (b) High impedance
 - (c) 1
 - (d) None of the above
6. Jump instruction is :
 - (a) 3 byte
 - (b) 2 byte
 - (c) One byte
 - (d) 4 byte
7. HLT is an instruction :
 - (a) 1 byte
 - (b) 2 byte
 - (c) 3 byte
 - (d) 4 byte
8. 2 to 4 decoder has :
 - (a) 4-inputs, 2-outputs
 - (b) 2-inputs, 2-outputs
 - (c) 4-inputs, 4-outputs
 - (d) 2-inputs, 4-outputs
9. In 8085 μ p the power supply needed :
 - (a) -5 volts
 - (b) 0 volts
 - (c) 5 volts
 - (d) 15 volts

10. If the memory chip size is 1024×4 bits, how many chips are required to make up 2 kbyte memory ?
- (a) 2 chips
 - (b) 4 chips
 - (c) 6 chips
 - (d) 8 chips

