Total Pages : 7 Roll No. .....

PHY-553

Memory Devices and Microprocessors

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

Second Year Examination, 2019 (June)

Time : 3 Hours] **Max. Marks : 80**

Note : This paper is of Eighty (80) marks divided into three (03) sections A, B and C. 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 any two (02) questions only.

(2×19=38)

1. (a) What is computer memory ? Discuss primary and secondary memory. 10

(b) Discuss EPROM, EEPROM and Flash memory. 9

2. (a) Write a short note on CMOS logic family. 10

(b) Discuss Emitter coupled logic. 9

3. (a) Discuss the programming model of 80386 μp. 10

(b) Using D latch, make a four bit register and explain its working. 9

4. (a) Explain the generation of control signals in 8085 μp. 10

(b) Discuss the requirement of 8259 interrupt controller. 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 any four (04) questions only. (4×8=32)

1. Discuss memory operations.

2. Explain the following parameters :

(a) Propagation delay.

(b) Fan out.

(c) Noise margin.

(d) Power dissipation.

3. What is RS flip-flop ? And what is its short comings ? How it can be removed.

4. Make a timing diagram of memory read instruction.

5. Make a bus diagram of 8085 μp bus organization and elaborate different bases.

6. Discuss the programming model of 8086 μp.

7. Explain RISC and CISC processors.

8. Explain the following assembly language program and find its output

MVI A 04H

MVI B 05H

```
MVI C    06H
ADD B
ADD C
STA      200AH
OUT      03H
HLT.
```

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. (10×1=10)

1. Four memory chips of 16 × 4 size have their address bus connected together. The system will be of size :

(a) 64 × 64

(b) 16 × 16

(c) 32 × 8

(d) 256 × 1.

2. Which of the following is an example of volatile memory ?

(a) ROM

(b) RAM

(c) PROM

(d) Hard-disc.

3. 8 to 3 encoder has :

(a) 3 inputs 8 outputs

(b) 3 inputs 3 outputs

(c) 8 inputs 3 outputs

(d) 8 inputs 8 outputs.

4. According to word size the types of instruction in 8085 μp are :

(a) 3

(b) 2

(c) 1

(d) 5.

5. MVI A 32H is an instruction :

(a) 4 byte

(b) 2 byte

(c) 1 byte

(d) 3 byte.

6. Data bus of 8086 μp is of :

(a) 8 bit

(b) 16 bit

(c) 32 bit

(d) 24 bit.

7. Data bus of 8085 μp is of :

(a) 16 bit

(b) 24 bit

(c) 8 bit

(d) 32 bit.

8. Address bus and data bus in any microprocessor are :

(a) address bus in unidirectional and data bus is bidirectional

(b) both are unidirectional

(c) both are bi directional

(d) none of the above.

9. Which input condition is forbidden in RS flip-flop.

(a) R = 0, S = 0

(b) R = 1, S = 1

(c) R = 0, S = 1

(d) R = 1, S = 0.

10. Hexadecimal equivalent of $(100)_{10}$ is :

(a) $(64)_{16}$

(b) $(74)_{16}$

(c) $(54)_{16}$

(d) $(84)_{16}$.