K22P 1427

Reg. No. : .....

Name : .....

III Semester M.Sc. Degree (CBSS – Reg./Sup./Imp.) Examination, October 2022
(2019 Admission Onwards)
PHYSICS
PHY 3E03 : Microprocessors and Applications

Time : 3 Hours Max. Marks : 60

SECTION – A

Answer **both** questions (either **a** or **b**) : **(2×12=24)**

1. a) i) Discuss programmed data transfer schemes, taking 8085 as example.
   ii) Explain serial data transfer in 8085.

   OR

   b) i) Describe the internal architecture of PPI 8255. Explain its salient features.
   ii) How the ports of 8255 are programmed ? Explain with example.

2. a) i) With the help of a block diagram explain the architecture and features of ADC0800.
   ii) Write an ALP to interface ADC 0800 alone with microprocessor 8085.

   OR

   b) i) With the help of a schematic diagram, discuss the internal architecture of microcontroller 8051.
   ii) List the interrupts in 8051 microcontroller. How the interrupt priority is programmed in 8051 ?

SECTION – B

Answer **any 4** (**1** mark for part **a**, **3** marks for part **b** and **5** marks for part **c**). **(4×9=36)**

3. a) What are machine cycles ?
   b) How does the following instructions differ, i) JP 8500 ii) JPE8500 ?
   c) Draw the complete timing of the instruction MOV A, B.

P.T.O.

4. a) Enlist the buses in 8085.
   b) Explain the addressing scheme for I/O devices. Which one among the two is more beneficial ?
   c) Write an ALP to find the 2's complement of a 16 bit number.

5. a) Enlist the interrupts in 8085.
   b) What is meant by priority of interrupts, explain using interrupts in 8085. What are vectored and non-vectored interrupts ?
   c) Explain enabling, disabling and masking of interrupts in 8085.

6. a) How the control signal for MEMORY WRITE operation is generated from standard signals of microprocessor ?
   b) What is interfacing ? Explain its necessity.
   c) What is USART ? Explain serial to parallel data conversion and transmission in 8251.

7. a) What is ZCD ? Draw its schematic and input output relationship for sine wave.
   b) With the help of a schematic diagram, explain the working of a current to voltage converter.
   c) What is the purpose of a sample and hold circuit ? Explain the working with suitable example. Define i) Acquisition time, ii) Aperture time and iii) Droop rate of a sample and hold circuit.

8. a) What are sub routines ? How they are executed in a programme ?
   b) What is the use of a multiplexer ? With suitable example explain the interfacing of a multiplexer.
   c) With the help of a schematic diagram explain the generation of square wave using microprocessor.
