



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.

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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.