



K20P 1124

Reg. No. :

Name :

III Semester M.Sc. Degree (CBSS – Reg./Suppl./Imp.)

Examination, October 2020

(2014 Admission Onwards)

PHYSICS

PHY3E03 : Microprocessors and Applications

Time : 3 Hours

Max. Marks : 60

SECTION – A

Answer both questions (either a or b) :

(2×12=24)

1. a) i) Explain the instruction format and the classification of instructions based on their word length in 8085.

ii) Discuss the addressing modes of instructions in 8085.

OR

b) i) What are the operating modes of 8253 ?

ii) Describe the architecture of Intel 8253. How the control word register of 8253 is programmed ? Discuss the various operating modes of 8253.

2. a) i) With the help of a block diagram explain the architecture of interrupt in 8085.

ii) Explain the programming and masking of interrupts in 8085.

OR

b) i) Write an ALP to formulate a delay sub routine using a single register. Obtain an empirical formula to compute the delay produced. What is the maximum time delay that could be achieved using the programme ?

ii) With the help of a schematic diagram, explain the measurement of frequency of a sine wave using a microprocessor based system.

P.T.O.



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 T – states ?
b) Distinguish between instruction cycle and machine cycle.
c) Draw the complete timing of the instruction MVI A, 01 H.
 4. a) What is address data multiplexing ?
b) Explain the addressing scheme for I/O devices. Which one among the two is more beneficial ?
c) What is DMA ? How does the two modes of DMA data transfer differ ?
 5. a) How the control signal for I/O READ operation is generated from standard signals of microprocessor ?
b) Draw the bit pattern of the control word register of 8255.
c) Taking intel 8257 as an example explain the basic requirements of a DMA controller.
 6. a) What is the purpose of a sample and hold circuit ?
b) Describe the methods of generating clock for ADC.
c) Discuss the salient features of ADC 0800. What are zero scale and full scale adjustment ?
 7. a) What is an interrupt ?
b) List the interrupts in 8051 microcontroller. How the interrupt priority is programmed in 8051 ?
c) Explain the register organization in 8051.
 8. a) What are the two types of 7-segment displays ? How do they differ in their operation ?
b) Why decoder cum drivers are necessary for the operation of 7 segment LED displays ?
c) Explain multi digit display using 7 segment LED.
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