



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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