

22P408

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Name:

Reg.No:

FOURTH SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2024

(CBCSS - PG)

(Regular/Supplementary/Improvement)

CC19P PHY4 E20 - MICROPROCESSORS, MICROCONTROLLERS AND APPLICATIONS

(Physics)

(2019 Admission onwards)

Time : 3 Hours

Maximum : 30 Weightage

Section A

Answer *all* questions. Each question carries 1 weightage.

1. Explain what is memory mapped I/O scheme and I/O mapped I/O scheme?
2. Discuss the main features of ADC 0800.
3. Write a short note on microcontrollers and embedded processors.
4. Write AVR features and draw simplified view of an AVR microcontroller.
5. Using block diagram, explain AVR general purpose registers and ALU.
6. Describe the action associated with an instruction BRNE using an example.
7. Why we program the AVR in C?
8. Write a program to send out the alternating values of 0x55 and 0xAA to port B.

(8 × 1 = 8 Weightage)

Section B

Answer any *two* questions. Each question carries 5 weightage.

9. Draw the basic architecture of intel 8085 and explain.
10. Show interfacing of memory chips using 74LS138 and explain working of interfacing.
11. How the control word registers of 8253 is programmed? Discuss the various operating modes of 8253.
12. Discuss the various I/O ports in a typical AVR microcontroller and their functional operations.

(2 × 5 = 10 Weightage)

Section C

Answer any *four* questions. Each question carries 3 weightage.

13. Develop an Assembly Language Program for finding the largest byte among a set of bytes stored in memory.
14. Draw and explain the timing diagram for memory read operation.

15. Discuss the main features of programmable interrupt controller intel 8259.
16. Describe 7 - segment LED display. How alphabets and numericals are displayed by this scheme?
17. Discuss the delay calculation in AVR and pipelining.
18. Write an AVR C program to show the count from 0 to FFH on the LEDs.
19. Write an AVR C program to toggle all bits of PORT B 50,000 times.

(4 × 3 = 12 Weightage)
