21P408 (Pages: 2) Name: .....

Reg.No: .....

FOURTH SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2023

(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. Discuss instruction cycle, machine cycle and state.
2. Write a short note on analog multiplexer.
3. Distinguish between microcontrollers and general purpose microprocessor.
4. Give description about AVR microcontroller I/O pins, peripherals and memory.
5. Write a short note on general purpose registers in the AVR.
6. How instructions are used to address AVR status registers?
7. Using suitable examples, explain different data types of AVR in C.
8. Describe the dual role of I/O ports in AVR.

(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. Explain the different interfacing in INTEL 8085 using 74LS138.
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. Write an 8085-assembly language program to add two 2-byte numbers.
14. Draw and explain the timing diagram for memory write operation.
15. Discuss the main features of programmable interrupt controller intel 8259.

16. Discuss interfacing of 7- segment LED display. How alphabets and numericals are displayed by this scheme?
17. explain the following assembler directives (i) .EQU (ii) .SET (iii) .ORG (iv) .INCLUDE
18. Write an AVR C program to toggle all the bits of PORT B 200 times.
19. Write an AVR C program to toggle all the bits of PORT B with a 100ms delay.

(4 × 3 = 12 Weightage)

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