(7 pages)

Reg. No. : ....

Code No. : 5790 Sub. Code : WPHE 2 B

M.Sc. (CBCS) DEGREE EXAMINATION,
APRIL 2024.

Second Semester

Physics – Elective

MICROPROCESSOR 8085 AND MICRO
CONTROLLER 8051.

(For those who joined in July 2023 onwards)

Time : Three hours   Maximum : 75 marks

PART A — (15 × 1 = 15 marks)

Answer ALL questions.

Choose the correct answer :

1. Which addressing mode has no memory referencing in 8085 μP?

    (a) Immediate   (b) Indirect

    (c) Memory   (d) Register

2. A program which translates an assembly language program into a machine language program is called

    (a) Interrupt   (b) Assembler

    (c) Accumulator   (d) Interpreter

3. To reduce time in transferring bulk data which controller is used?

    (a) Counter   (b) Timer

    (c) Interrupt   (d) DMA

4. If a stepper motor has 200 steps per revolution then the step angle is

    (a) 1.8°   (b) 0.72°

    (c) 7.5°   (d) 2°

5. ADC is otherwise known as

    (a) Multiplexer   (b) Demultiplexer

    (c) Encoder   (d) Decoder

6. In general, a seven segment display contains ——————— LEDs.

    (a) 5   (b) 7

    (c) 6   (d) 8

7. 8051 microcontrollers generally have ————— priority interrupts.
   (a) 16-level   (b) 8-level
   (c) 2-level   (d) 4-level

8. How many timers are there in 8051?
   (a) Two 8-bit   (b) Two 16-bit
   (c) One 8-bit   (d) One 16-bit

9. In 8051 micro controller, the internal RAM size is
   (a) 32 byte   (b) 64 byte
   (c) 128 byte   (d) 256 byte

10. SWAP A instruction interchanges the low-order and high-order nibbles to the
    (a) Register pair   (b) Accumulator
    (c) Memory   (d) Counter

11. Which interrupt has the highest priority in 8051?
    (a) TRAP   (b) RST 6.5
    (c) RST 7.5   (d) RST 8.5

12. Which of the following is not an addressing mode of 8051?
    (a) Register instructions
    (b) Register specific instructions
    (c) Indexed addressing
    (d) None

13. When the microcontroller is turned on, all interrupts are ————— by default
    (a) Enabled   (b) Disabled
    (c) Executed   (d) Undefined

14. DAC converts ————— sent by the microprocessor.
    (a) Digital voltage only
    (b) Digital current only
    (c) Analog voltage or current
    (d) Analog voltage only

15. Strain is a measure of ————— produced by the application of external forces.
    (a) Orderness   (b) Deformation
    (c) Formation   (d) Undefined

PART B — (5 × 4 = 20 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

16. (a) Describe memory and I/O interfacing.

    Or

    (b) Show the control word format and explain how each bit is programmed.

17. (a) Explain how temperature is measured using steeper motor interfacing.

Or

(b) Draw the schematic for interfacing a stepper motor with 8085 microprocessor.

18. (a) Explain the register set of 8051 microcontroller.

Or

(b) Draw the organization of input and output pins in 8051 microcontroller.

19. (a) Detail the working of PUSH and POP instructions.

Or

(b) Explain how subroutine is working in 8051 microcontroller.

20. (a) Explain the serial communication interrupts and programming in 8051 microcontroller.

Or

(b) How to interface a seven segment display using 8051 microcontroller?

PART C — (5 × 8 = 40 marks)

Answer ALL questions choosing either (a) or (b).

Each answer should not exceed 600 words.

21. (a) List out the addressing modes of 8085 microprocessor and explain each with an example.

Or

(b) With neat block diagram explain PPI.

22. (a) Explain the seven segment display interface with microprocessor.

Or

(b) Describe the interfacing of digital to analog and analog to digital conversion.

23. (a) Draw the pin diagram of 8051 microcontroller and explain its features.

Or

(b) Explain the program memory and data memory structure of 8051 microcontroller.

24. (a) Mention various arithmetic operations performed in assembly language of 8051 microcontroller?

Or

(b) Explain Jump and Call instructions of 8051 microcontroller with an example and mention the difference between Jump and Call operations.

25. (a) Define interrupt and state how to enable and disable the interrupts of 8051 microcontroller.

Or

(b) Explain how voltage is measured using steeper motor interfacing in 8051 microcontroller.

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