



C14-EC-405

4459

BOARD DIPLOMA EXAMINATION, (C-14)

SEPTEMBER/OCTOBER - 2020

DECE—FOURTH SEMESTER EXAMINATION

MICROPROCESSOR AND MICROCONTROLLER
PROGRAMMING

Time : 3 hours]

[Total Marks : 80

PART—A

3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Draw the block diagram of a microprocessor.

2. List any four features of microprocessors.

3. List the interrupts of 8051.

4. State the purpose of PSW register in 8051.

5. Write any three comparisons between machine language and assembly language.

6. What is the instruction set of 8051 based on their operation?

7. What is a flowchart? Draw various symbols used in flowchart.

- * 8. Write a program to perform 2's complement of an 8-bit data is in external RAM location 2400 H and save the result in 2401 H.
9. What are the RS232 standards?
10. Briefly explain Max232 interfacing.

PART—B

10×5=50

Instructions : (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. (a) Explain the register structure of 8085.
(b) Explain about multiplexing of address and data bus of 8085 microprocessor.
12. (a) Explain the execution of STA instruction using timing diagram.
(b) Define debugging and explain the principles of single-step and break-point debugging techniques.
13. Draw the functional block diagram of 8051 and explain the function of each block.
14. (a) Explain the timers/counters of 8051.
(b) Describe the bit assignment of SCON register in 8051.
- * 15. (a) Explain Opcode and Operand with an example.
(b) Explain data manipulation and conditional jump instructions of 8051 with examples.
16. Explain different addressing modes of 8051 with examples.

- * **17.** Write an assembly language program along with comments to subtract two 8-bit numbers stored in the external memory location 8000H and 8001H. Store the result at 3000H, if the result is positive store 00H in the location 3001H or if the result is negative store 01H in the location 3002H.
- 18.** Write a program to generate a square wave of frequency 10 kHz with 50% duty cycle using timer. Assume 8051 crystal frequency is 12 MHz.

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