

**6630**  
**BOARD DIPLOMA EXAMINATION**  
**MARCH/APRIL - 2019**  
**DIPLOMA IN ELECTRONICS AND COMMUNICATION ENGINEERING**  
**MICROCONTROLLERS**  
**FIFTH SEMESTER EXAMINATION**

**Time: 3 Hours**

**Total Marks: 80**

**PART - A (3m x 10 = 30m)**

*Note 1: Answer all questions and each question carries 3 marks*

*2: Answers should be brief and straight to the point and shall not exceed 5 simple sentences*

1. List the modes and their functions of Timers in 8051
2. Differentiate Microprocessor and Microcontroller?
3. Classify instructions of 8051 microcontroller
4. Explain RL A and RRC A instructions of 8051 microcontroller
5. Write an ALP to transfer the data byte present in external memory with address 4500H into external memory with address 4501H
6. What is the content of Accumulator and the state of Carry flag after execution of the following instructions?  
MOV R3, #55H  
MOV A, #AAH  
ADD A, R3
7. Draw a diagram interfacing 16 X 2 LCD module to 8051 microcontroller
8. Draw a diagram interfacing 8 LEDs to Port3 of 8051 microcontroller
9. Draw the pin configuration of RS 232 DB9 connector
- \* 10. What is the use of stepper motor?

**PART - B (10m x 5 = 50m)**

*Note 1: Answer any five questions and each carries 10 marks*

*2: The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer*

11. (a) Explain the structure of internal RAM of 8051 (6M)  
(b) Explain the functions of PC and DPTR of 8051 (4M)
12. Explain the operation carried out on execution of the following 8051 instructions. (10M)  
(i) MOV 33H, R0 (ii) MOV @R1, A (iii) MOVX A, @R1  
(iv) MOVX A, @DPTR (v) MOVX @DPTR, A

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13. Explain different types of Rotate instructions of 8051
14. What is Debugging? Explain briefly different types of debugging techniques.
15. Ten 8 bit numbers are present in the external RAM locations from address 4500H. Write an ALP with comments to transfer these numbers into i-RAM locations from address 40H
16. Draw interfacing diagram to connect 8 LEDs to Port 3 of 8051 microcontroller and write an ALP with comments to make all LEDs to blink continuously with a delay of 1 second
17. (a) Explain the need for pulse width modulation in motor speed control application (5M)  
(b) Draw an interfacing circuit to interface a stepper motor to 8051 with a driver (5M)
18. Write an ALP to transmit the message "POLY" serially with 9600 Baud rate

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