6630
BOARD DIPLOMA EXAMINATION
JUNE - 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. Draw the format of PCON register in 8051 microcontroller

2. What is the function of Stack Pointer and Program Counter?

3. Write the instruction format of 8051

4. Explain the instructions: (a) ANL A, Direct (b) XRL A, @ R1

5. Write an ALP to subtract the 8 bit number present in external RAM with address 3600H from the number present in R3 and store the result in i-RAM with address 30H

6. Write an ALP to copy the data byte from external RAM with address 3300H into i-RAM locations with address from 30H to 34H

7. Draw a diagram interfacing 16 X 2 LCD module to 8051 microcontroller

8. What is Key debouncing? List different debouncing techniques

9. While 8051 timer 1 is operated in mode 2, Calculate the count(Hexadecimal) to be loaded into TH1 register to get a time delay of 100 μ sec. Take crystal frequency as 12 MHz

* 10. What is the need for MAX 232?

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. Draw the figure showing the internal architecture of 8051 microcontroller and explain the function of each block

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

13. Classify different groups of instructions of 8051 microcontroller and explain each group with two examples

14. 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

15. Two 8 bit numbers are present in the i-RAM locations with address 30H & 31H. Write an ALP with comments to add these numbers and to store the sum and carry in the i-RAM locations with address 32H & 33H respectively

16. Draw interfacing diagram to interface a 16 X 2 LCD module to 8051 microcontroller and write an ALP to display "POLY" in the middle of 1st line

17. Write an ALP to generate a square wave of 10 KHz frequency on P3.2 of 8051 microcontroller using timer 1 in mode 1

18. (a) Explain briefly the working of Stepper motor. (5M)
    (b) Draw and explain an interfacing circuit to interface 8051 to a stepper motor with a driver (5M)

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