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BOARD DIPLOMA EXAMINATION
MARCH/APRIL - 2019
DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING
DIGITAL ELECTRONICS & MICRO CONTROLLERS
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. Realize OR operation using NAND gates only

2. Convert the Decimal number 948.1875 into Hexadecimal number system

3. Draw the logic circuit of 1 to 4 demultiplexer

4. Draw the block diagram of full adder using two half adders and an OR gate

5. What is race around condition?

6. What is a shift register? List different types of shift registers

7. List the various status flags in the PSW register

8. List the SFRs associated with the interrupts of 8051

9. Find the status CY and AC flags after execution of the following

    MOV   A, #99 H

    ADD A, #58 H

10. List any six conditional jump instructions of 8051 microcontroller

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) Divide binary number 111101 by 100

    (b) Subtract 1101.01_2 from 1001.11_2 using 2's complement method

12. (a)Realize half adder using NAND gates only

    (b) Show that two half adders and an OR gate constitute a full adder

13. Draw the block diagram of serial adder and explain its working

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14. (a) Explain the operation of NOR latch with its truth table
    (b) Draw the symbols of positive edge triggered D and T
        flip flops and write their truth tables

15. Draw the circuit diagram and explain the working of 4-bit
    asynchronous counter with truth table and timing diagram

16. Draw the pin – diagram of 8051 microcontroller and state the function
    of each pin

17. a) Explain immediate and register indirect addressing modes with
    one example of each
    b) Explain the following instructions
    i) MOVX A,@DPTR   ii)MOVC A,@A+PC

18. a) Distinguish between machine language and assembly language
    b) Classify the 8051 instruction set as per their length with two
    examples of each

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