



C16-EE-405

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**5658**

**BOARD DIPLOMA EXAMINATION, (C-16)  
OCTOBER/NOVEMBER-2018  
DEEE-FOURTH SEMESTER EXAMINATION**

DIGITAL ELECTRONICS AND MICROCONTROLLERS

Time : 3 Hours ]

[ Total Marks: 80

**PART-A**

3X10=30

**Instructions :**

1. Answer **All** questions.
2. Each question carries **Three** marks.
3. Answer should be brief and straight to the point and shall not exceed five simple sentences.

1. Divide the following Binary Numbers. (a)  $110_2$  by  $11_2$  (b)  $11000_2$  by  $1000_2$
2. Draw the block diagram of Full Adder using Half Adder.
3. Distinguish between ROM and RAM
4. Compare synchronous and asynchronous counters.
5. List the Interrupts of 8051 as per the priority.
6. Write any six special function registers.
7. What is the difference between the MOV and MOVX instructions?
8. Define Opcode and Operand.
9. Find the number of bytes for each of the following instructions.
  - a. MOV A,B
  - b. CPL C
  - c. INC 40H
10. Draw the flow chart to add two numbers stored in the iRAM locations 60H and 61H and to store the result in the register R6.

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## PART-B

10X5=50

*Instructions* :

1. Answer any **Five** questions.
2. Each question carries **ten** marks.
3. Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer

11. Explain the construction and working of 8 x 1 multiplexer.
12. (a) State De-Morgan's theorem.  
(b) Explain the working of NAND, NOR and NOT gates using truth tables?
13. Explain the working of JK Flip flop with truth table
14. Draw the circuit diagram and explain the operation of 4-bit decade counter.
15. Draw the pin diagram of 8051 micro controller and explain the function of each pin.
16. (a) Write brief notes on TMOD and TCON.  
(b) Explain in brief about Interrupt Priority (IP) and Interrupt Enable.
17. Explain the following branch instructions.  
a) LJMP      b) JNZ      c) JNB      d) ACALL      e) CJNE
18. Write the program to calculate the sum of given 'N' numbers. The location of 'N' is 30 H.

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