C-09-EE-405

3477

BOARD DIPLOMA EXAMINATION, (C-09)

MARCH / APRIL - 2019

DEEE - IV SEMESTER EXAMINATION

DIGITAL ELECTRONICS & MICRO CONTROLLERS

Time : **3** Hours] [Total Marks : **80**

PART - A **3×10=30**

Instructions : *(1) Answer **ALL** questions.*
*(2) Each question carries **THREE** marks.*
(3) Answer should be brief and straight to the point.

1 Explain how a bubbled AND gate is equivalent to a NOR gate with symbols and truth tables.

2 Draw the logic circuit and truth table of 2×4 decoder.

3 Distinguish between flash ROM and NVRAM.

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

5 List the alternate functions of port 3 of 8051 microcontroller.

6 What is the difference between a Counter and a Timer ?

7 List any six conditional jump instructions of 8051 microcontroller.

8 State the addressing mode of each of the following instructions :
(a) MOV A, #30 H
(b) MOV A, @R0
(c) SUBB A, 56 H
(d) MOVX A, @DPTR
(e) RR A
(f) ADD A, R1.

9 Define machine cycle and instruction cycle.

10 Draw a flow chart to multiply two numbers 56H and 33H.

PART - B 10×5=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 Perform the following conversions : **4+4+2**

(a) 125_{10} into Binary and Octal number systems.

(b) $AC6.F3_{16}$ into Binary and Decimal number system.

(c) 1010111_2 into BCD.

12 Draw the circuit and explain the working of 4 bit parallel binary adder with an example.

13 Draw the diagram and explain the working of 4-bit asynchronous counter with truth table and wave forms.

14 Draw the circuit and explain the operation of master slave JK flipflop.

15 Draw and explain the bit wise description of IE and IP registers.

16 Explain the register structure of 8051 microcontroller.

17 (a) Explain RR A and RRC A instructions with one example. **5+5**

(b) Explain the following instructions :

(i) DA A (ii) MUL AB.

18 Write an assembly language program along with comments to add two 8-bit numbers stored in the external memory locations 4500H and 4501 H. Store the result at 4502H and 4503H.