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C16-EE-505

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**BOARD DIPLOMA EXAMINATION, (C-16)  
OCT/NOV—2018  
DEEE—FIFTH SEMESTER EXAMINATION**

DIGITAL ELECTRONICS AND MICRO CONTROLLERS

Time : 3 hours ]

[ Total Marks : 80

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**PART—A**

3×10=30

- Instructions :** (1) Answer **all** questions.  
(2) Each question carries **three** marks.  
(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Convert the following into binary.  
a)  $(18.75)_{10}$       b)  $(8D)_{16}$       c)  $(23.54)_8$
2. State De-Morgan's theorems in Boolean algebra.
3. Realize Half-adder using NOR gates only.
4. Compare the performance of serial and parallel adder.
5. Draw edge triggered D flip flop and write its truth table.
6. Classify various types of memories based on accessing modes.
7. State the need of a register and list any four types of special function registers of 8051.
8. Draw the pin diagram of 8051 microcontroller.
9. State the need for an instruction set.
10. List the major groups in the instruction set of 8051.

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**PART-B**

10×5=50

- Instructions :** (1) Answer *any five* questions.  
(2) Each questions carries **ten** marks.  
(3) Answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

11. Explain AND, OR, NOT, NAND, NOR gates with truth table.
12. Draw and explain a 4 Bit parallel adder using full-adders.
13. Draw and explain BCD to decimal decoder.
14. Draw and explain asynchronous decade counter.
15. Explain basic principle of working of diode ROM.
16. Explain interrupts in 8051 microcontroller.
17. Explain any five arithmetic instructions with examples.
18. Write program to sum up given N numbers.

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