



C16-EE-405

5658

**BOARD DIPLOMA EXAMINATION, (C-16)
MARCH/APRIL—2018
DEEE—FOURTH SEMESTER EXAMINATION**

DIGITAL ELECTRONICS AND MICROCONTROLLERS

Time : 3 hours]

[Total Marks : 80

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 $(11011)_2$ into decimal number system.
2. Write the importance of parity bit.
3. List different types of flip-flops.
4. Differentiate between RAM and ROM.
5. List the features of 8051 microcontrollers.
6. What are interrupts in 8051?
7. Give the instruction format of 8051.
8. Classify instruction set of 8051 based on function.

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9. What are the various symbols used in drawing flowchart?
10. Define fetch cycle and execution cycle.

PART—B

10×5=50

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

11. (a) Subtract binary number $(1101)_2$ from $(1000)_2$ in 2's complement method. 5
(b) Show that two half-adders and OR-gate constitute a full-adder. 5
12. Explain the working of 4-bit parallel adder using full-adders.
13. Explain JK master-slave flip-flop with the truth table and waveforms.
14. Explain the working principle of synchronous 4-bit ripple counter with the help of truth table and waveforms.
15. Draw the pin diagram of 8051 microcontroller and specify the purpose of each pin.
16. Describe internal memory, external memory and ports of 8051.
17. Explain the various addressing modes of 8051.
18. Write a program to find the sum of three data bytes.
