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BOARD DIPLOMA EXAMINATION, (C-16)

MAY/JUNE—2023

DEEE - FIFTH 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.

1. Convert the following numbers into binary :
(a) $(214.25)_{10}$
(b) $(2F)_{16}$
2. Draw the logic symbol of EX-OR gate and write its truth table.
3. Compare the performance of serial adder and parallel adder.
4. List any three applications of multiplexers.
5. What is race around condition?
6. Compare Static RAM and Dynamic RAM.
7. List any three features of 8051 microcontroller.
8. State the functions of the following :
(a) Data Pointer
(b) Program Counter

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9. List the major groups in the instruction set of 8051 microcontroller.
10. Define the terms operation code and operand of an instruction.

PART—B

10×5=50

Instructions : (1) Answer *any five* questions.
(2) Each question carries **ten** marks.

11. Subtract the binary numbers using 2's compliment method (a) subtract 100100 from 110011 and (b) subtract 111001 from 101011.
12. Draw and explain 4-bit parallel adder using full adders.
13. Draw and explain BCD to decimal decoder.
14. Explain the working of level triggered J-K flip-flop with a circuit diagram.
15. Explain the working of ring counter and list its applications.
16. Draw the pin diagram of 8051 microcontroller and explain the function of each pin.
17. Explain any five arithmetic instructions of 8051 microcontroller with examples.
18. Write an assembly language program of 8051 to sum up given 'N' numbers.

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