QP CODE: 24802105

24802105

Reg No : .....

Name : .....

I.M.C.A DEGREE EXAMINATION, MARCH 2024

First Semester

Faculty of Technology and Applied Sciences

I M C A

CORE - IMCA1C02 - DIGITAL ELECTRONICS AND MICROPROCESSORS

2020 ADMISSION ONWARDS

CE5443DE

Time: 3 Hours Maximum: 75 Marks

Part A

*Answer any **ten** questions*

*Each question carries **3** marks*

1. Convert $(4357)_8$ to Hexadecimal equivalent.
2. Perform Subtraction $(1101)_2$ - $(1010)_2$
3. What is the use of Parity Bit?
4. Explain Exclusive OR gate.
5. What are Universal gates? Why they are called so?
6. State and Prove Associative Laws.
7. What are Combinational Circuits ? Explain with neat diagram
8. What are the applications of Registers?
9. Explain the components of bus interface unit.
10. Explain the functionalities of minimum mode operation.
11. Differentiate between opcode and operand.
12. Write the instructions for flag manipulation.

(10×3=30 marks)

Part B

*Answer **all** questions*

*Each question carries **9** marks*

13. a) Explain various Signed number representations in detail. Write decimal number -108 in all representations.

OR

b) Explain Hamming Code with suitable example.

14. a) Discuss the basic theorems of Boolean algebra.

OR

b) Implement the Boolean function by using a NAND logic gate. F (A, B, C, D, E) = A + (B' + C) (D' + BE')

15. a) Explain Full Adder with Truth table and Diagram.

OR

b) Explain Counters with shift registers.

16. a) Categorize the signals in 8086 and explain.

OR

b) Explain the process of addressing I/O in 8086 microprocessor.

17. a) Explain the data transfer instructions in 8086 microprocessor.

OR

b) Explain about stack and its operations.

(5×9=45 marks)