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C16–CM–302/C16–IT–**302**

# 6228

## BOARD DIPLOMA EXAMINATION, (C–16)

## OCT/NOV—2017

## DCME—THIRD SEMESTER EXAMINATION

DIGITAL ELECTRONICS AND COMPUTER ARCHITECTURE

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

**PART—A** 10×3=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.** Define Exclusive OR gate. Give its truth table

**2.** State DeMorgan's laws

**3.** Write differences between edge triggering and level triggering in flip flops.

**4.** State the applications of counters.

**5.** Define multiplexer. Give block diagram of 2×1 multiplexer.

**6.** Draw the block diagram of digital computer.

**7.** What are operand, opcode and address?

**8.** Differentiate between register and register indirect addressing modes.

**9.** List various memory device charactertics.

**10.** What is interrupt initiated I/O?

## PART—B

5×10=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.** Explain the operation of 4-bit digital comparator.

**12.** Implement RS latch using NAND and NOR gates and explain with truth tables.

**13.** Explain the working of serial in serial out and serial in parallel out registers.

**14.** *(a)* Write about 4-bit ring counter. 5

*(b)* What is decoder? Explain with an example 5

**15.** Explain sequential execution of program stored in memory by CPU

**16.** Explain fixed point multiplication with an example

**17.** *(a)* Write about principle and advantage of cache memory. 5

*(b)* Give two address instruction for (A+B)*(C+D) 5

**18.** Explain in detail about DMA controlled data transfer.

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