Subject Code—0409

M.C.A. (Second Year) EXAMINATION

(5 Years Integrated Course)

(Batch 2009 Onwards)

DIGITAL ELECTRONICS

MCA-203

Time : 3 *Hours*   *Maximum Marks :* 70

Section A

Note : Attempt any *Seven* questions.   **7×5=35**

1. State and prove De Morgan's Laws.

2. Convert $(1059.72)_{10}$ into octal.

3. What are ASCII Codes ? What are its applications ?

4. Differentiate between POS and SOP forms.

5. Convert RS flip-flop into JK flip-flop.

6. Draw excitation table for RS and JK flop-flops.

7. Draw circuit for Mod-6 Asynchronous Counter.

8. Draw and explain CMOS inverter circuit.

9. What is race-around condition ? How is it avoided ?

10. Draw circuit for 8 : 1 MUX. How does it work ?

Section B

Note : Attempt all the questions.

11. Describe a full adder with the help of multiplexes.

Or

Design a full substractor by using gates. **12**

12. Draw and explain working principle of JK flip-flops.

Or

Draw and explain various types of shift Registers. **12**

13. Design a Mod-9 counter by using JK flip-flips.

Or

Draw schematic for a TTL NAND gate and explain, how does it work ? **11**