

Roll No.

Subject Code—8046-X

P.G.D.C.A./M.C.A. EXAMINATION

(Re-appear Batch 2009 Onwards)

(First Semester)

(MCA 3 Years)

MS-03

DIGITAL ELECTRONICS

Time : 3 Hours

Maximum Marks : 70

Section A

Note : Attempt any *Seven* questions. $7 \times 5 = 35$

1. Realize $y = (A + B + C) (\bar{A} + B + \bar{C}) (B + \bar{C})$ by NOR gates only.
2. Draw and explain 8 : 1 multiplexer circuit with the help of AND/OR gates.

3. Draw truth table for full subtractor, design it.
4. Explain various types of gates used in Digital Electronics.

5. Design :

$$f(A, B, C, D) = \Sigma(0, 2, 3, 5, 8, 9, 11) \\ + \phi(13, 14, 15)$$

6. Draw a CMOS inverter. How does it work ?
7. Explain the following :
 - (a) Propagation delay
 - (b) Fan in/out.
8. Draw an 8 bit ring counter. How does it work ? What are its applications ?
9. Draw SR flip-flop with its truth table. How does it work ?
10. Convert :
 - (a) $(567.467)_8$ into binary
 - (b) $(10592.432)_{10}$ into hexadecimal.

Section B

Note : Attempt all the questions.

11. Design a BCD to 7 segment display driver circuit. 12

Or

Design a full adder by using multiplexers only.

12. Draw structure of a RAM cell. How does it work ? 12

Or

Draw structure of a ROM cell, give its working principle and their types of ROM.

13. What are A/D converters ? Explain their types and draw comparison between them. 11

Or

Design a decade counter by using JK flip-flops.