Bachelor level/B.Sc. CSIT/I Semester

Time: 3 hrs.

Subject: Digital Logic (COM415)

Full Marks: 60

Pass Marks: 30

Candidates are required to give answers in their own words as far as practicable. Figures in the margins indicate marks.

Group A

Very short questions (Attempt all)   [8 x 2 = 16]

1. What is a digital signal? Illustrate with a diagram.

2. Differentiate between Sequential and Combinational circuits.

3. What do you mean by BCD codes?

4. State and prove De-Morgans Theorem.

5. What is a K-map? Illustrate its uses.

6. Define a Full Adder. Draw its Block Diagram.

7. What are the applications of CPLD?

8. What do you mean by PLA?

Group B

Short answer questions (Attempt any five)   [5 x 4 = 20]

9. Reduce the following function using K-map. $F(A,B,C,D)=\sum m(0,1,4,8,9,10)$. Draw necessary Circuit Diagram.

10. Define Gray Code. Convert $(415.6875)_{10}$ into $(......)_8$.

11. What do you mean by Multiplexer? Design 8 by 1 Multiplexer with its Circuit diagram.

12. Define decoder. Draw logic diagram and truth table of 3 to 8- line decoder.

13. Explain Universal Gates. Realize NAND and NOR gate as Universal gate.

14. Define Asynchronous Counter. Draw a 3-bit Asynchronous up counter.

Group C

Long answer questions (Attempt any three)   [3 x 8 = 24]

15. Design BCD to Seven segment display decoders.

16. What do you mean by Register? Explain serial in serial out (SISO) shift register.

17. Explain the working principle of simple digital clock.

18. Define Flip Flop. Explain its types with its all-necessary diagram.

The End