Roll No. | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 09

B.Tech. (CSE / IT) (Sem.–3)

DIGITAL CIRCUITS AND LOGIC DESIGN

Subject Code : CS-205

Paper ID : [A0453]

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Write briefly :

a) What are the advantages of CMOS memory chips over bipolar memory chips?

b) Define the term resolution of an A to D converter.

c) What is the minimum voltage value that is considered as high stage input in case of TTL logic family?

d) List two applications of Multiplexer.

e) Which is the fastest ADC among available ADCs?

f) What is a volatile memory?

g) Convert 2222 in Hexadecimal number.

h) Define TTL.

i) What is Ring Counter?

j) Why we need shift registers?

SECTION-B

2. What is the necessity of Interfacing in digital ICs and what are the points to be kept in view, while interfacing between TTL gate and CMOS gate?

3. Explain the working of dual slope A/D converter.

4. Explain how Parallel in Serial out (PISO) shift register works.

5. Draw the circuit diagram of a mod-5 counter and convert it into decade counter.

6. With help of neat diagram explain working of R-2R ladder type DAC.

SECTION- C

7. Name and discuss the various types of semiconductor memories.

8. a) Design a circuit that will generate an even parity bit for 4 bit input and implement it using only NAND gates.

   b) What is master slave J/K flip flop? Explain its working.

9. a) What is a BCD code? What are its advantages and disadvantages?

   b) Describe with diagram internal architecture of PAL.