

**B. Tech. Sem – VIII (Biomedical Engg.) (2014 COURSE) (CBCS) :
SUMMER - 2019**

SUBJECT : ELECTIVE – III : VLSI TECHNOLOGY

Day : Tuesday
Date : 28/05/2019

Time : 02.30 PM TO 05.30 PM
Max. Marks : 60

S-2019-2937

N. B. :

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagram **WHEREVER** necessary.
- 4) Assume suitable data, if necessary.

Q. 1 What is an attribute? Describe any two attributes with example used in VLSI. (10)

OR

Design 3 : 8 line decoder using VHDL. (10)

Q. 2 Compare synchronous and asynchronous machine. Write the steps to design synchronous machine. (10)

OR

Design 1011 sequence detector using mealy machine. (10)

Q. 3 Draw the architecture of FPGA. Explore the interconnect matrix and logic cell. (10)

OR

Implement the following function using PLA: (10)

$$f_1(A, B, C) = \sum m(0, 1, 2, 5)$$

$$f_2(A, B, C) = \sum m(2, 5, 6)$$

$$f_3(A, B, C) = \sum m(3, 4, 7)$$

Q. 4 Describe static and dynamic power dissipation in MOS circuits. (10)

OR

Write note on: (10)

- a) BiCMOS Logic
- b) CMOS parasites

Q. 5 Design two input AND gate using CMOS Logic. (10)

OR

Prove that (W/L) ratio of PMOS to NMOS banks in CMOS is nearly 2. (10)

Q. 6 What is the need of clock distribution? Describe the techniques of clock distribution. (10)

OR

Describe the concept of power optimization. (10)

* * * * *