III B. Tech I Semester Supplementary Examinations, October/November - 2020
DIGITAL IC APPLICATIONS
(Common to Electronics and Communication Engineering, Electronics and Instrumentation
Engineering, Electronics and Computer Engineering)

Time: 3 hours   Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

~~~~~~

PART –A   (14 Marks)

1. a) Define Simulation? Explain about simulations at various levels.   [2M]
    b) What are the functions to be formed by ALU?   [2M]
    c) What is VHDL and write a Simple Program.   [2M]
    d) What are the disadvantages of Ripple adder?   [3M]
    e) Explain the need of master slave operation.   [3M]
    f) What is the difference between mealy and Moore machines.   [2M]

PART –B   (56 Marks)

2. a) Explain the operation of CMOS NAND and NOR Gates.   [7M]
    b) Explain the following terms transition time and propagation delay.   [7M]

3. a) Explain the VHDL program file structure and explain the same with the syntax   [7M]
        of a VHDL entity declaration and architecture definition.
    b) Write the basics in VHDL programming using structural and data flow   [7M]
        modeling.

4. a) Write a VHDL program for 4x1 Multiplexer and 1x4 Demultiplexer.   [7M]
    b) Explain Null, Next, Assertion, and Wait statements.   [7M]

5. a) Explain about 74X157 2-input 4-output multiplexer.   [7M]
    b) Explain about parity generator and checker.   [7M]

6. a) Write a VHDL code for 8-bit ring counter.   [7M]
    b) Explain the operation of synchronous 4-bit binary counter.   [7M]

7.   Write short notes on the following:
        a) Mealy Machine   [7M]
        b) State diagram.   [7M]

*****

||"|'||"||"""|