

SET - 1

Max. Marks: 70

3. Answer any **FOUR** Questions from **Part-B**

Code No: R1631043

R16
SET - 2
III B. Tech I Semester Regular Examinations, October/November - 2018
DIGITAL IC APPLICATIONS

(Common to Electronics Communication Engineering and Electronics Instrumentation 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

1. a) Give the logic levels of CMOS and TTL families. [2M]
- b) What is Enumeration data type in VHDL? Give examples. [2M]
- c) Define and explain Loop statement. [2M]
- d) Write a VHDL program for 1 x 4 demultiplexer. [3M]
- e) Distinguish between Synchronous Counters and Asynchronous Counters. [3M]
- f) Define the terms State diagram and state table. [2M]

PART -B

2. a) Draw the dynamic electrical behaviour of CMOS inverter and explain. [7M]
- b) Explain the differences between TTL, ECL & CMOS logic family. [7M]
3. a) Discuss the binding? Discuss the binding between entity and components. [7M]
- b) Write a process based VHDL program for the prime-number detector of 4-bit input and explain the flow using logic circuit. [7M]
4. a) Discuss Inertial Delay Model? [7M]
- b) Explain the concept of internal logic synthesizer and also draw the schematic. [7M]
5. a) With the help of logic diagram explain 74x157 multiplexer. Write the data flow Style VHDL program for this IC? [7M]
- b) Explain about Comparator and design a 16-bit comparator using 74x85 IC's. Write VHDL program. [7M]
6. a) Explain how a JK- flip-flop can be constructed using a T- flip-flop. [7M]
- b) Write down truth table, VHDL Code for the 4 bit register with parallel load. Also draw the circuit and output waveform. [7M]
7. a) Explain the minimization of completely specified sequential machines. [7M]
- b) Convert the following mela machine into a corresponding Moore machine. [7M]

P.S	NS,X=0	Z, X=1
A	B,0	E,0
B	E,0	D,0
C	D,1	A,0
D	C,1	E,0



SET - 3

SET - 4

Max. Marks: 70

3. Answer any **FOUR** Questions from **Part-B**
