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Question Paper Code: 43602

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Third Semester

Instrumentation and Control Engineering

14UIC302 – DIGITAL LOGIC CIRCUITS AND DESIGN

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 1 = 10 Marks)

- How many outputs are on a BCD decoder?
(a) 4 (b) 16 (c) 8 (d) 10
- What are the symbols used to represent digits in the binary number system?
(a) 0,1 (b) 0,1,2 (c) 0 through 8 (d) 1,2
- What is ROM?
(a) repeat on memory (b) read on memory
(c) read only memory (d) repeat only memory
- In PROM, we can
(a) store the data once and read multiple times (b) store and erase data once
(c) store and erase data multiple times (d) store once and read once
- Which type of gate can be used to add two bits?
(a) Ex-OR (b) Ex-NOR (c) Ex-NAND (d) NOR
- How many flipflops are required to build a binary counter that counts from 0 to 1023?
(a) 12 (b) 20 (c) 50 (d) 10

18. (a) Design a four state down counter using T flip flop. (16)

Or

(b) Construct a decade ripple counter using flip flops and explain. (16)

19. (a) Draw the fundamental mode asynchronous circuit and explain in detail. (16)

Or

(b) (i) What is the procedure for obtaining the transition table form the circuit diagram of an asynchronous sequential circuit? (8)

(ii) Discuss in detail the race conditions. (8)

20. (a) Explain the various modeling methods used in VHDL with an example. (16)

Or

(b) (i) Write VHDL code for a full sub tractor using logic Equation. (8)

(ii) Write a VHDL description of an S-R latch using a process. (8)
