

M293

B.E./B.TECH. DEGREE EXAMINATIONS, MAY/JUNE—2011

REGULATIONS 2007

THIRD SEMESTER

EC 1203 — DIGITAL ELECTRONICS

ELECTRONICS AND COMMUNICATION ENGINEERING

(Common to Information Technology)

Time: Three Hours

Maximum:100 marks

ANSWER ALL QUESTIONS

PART—A (10×2=20)

1. List out the characteristics of RTL family.
2. Define fan in and fan out.
3. What is meant by magnitude comparator?
4. What do you mean by carry propagation delay?
5. What is the difference between decoder and demultiplexer?
6. Draw 8x1 MUX using dual 4x1 MUX.
7. What is a ring counter?
8. State the difference between mealy/moore and ASM.

9. What is static 1 hazard?
10. Compare fundamental and pulse mode asynchronous sequential circuit.

PART-B (5×16=80)

11. (a) Explain with neat diagram the TTL NAND gate with totem-pole and tristate output. (16)

Or

- (b) (i) Discuss the characteristics of CMOS logic. (8)
- (ii) With diagram explain the working of RTL NOR gate. (8)
12. (a) (i) Explain the design procedure of combinational circuit. (8)
- (ii) Draw and explain the block diagram of n-bit parallel adder. (8)

Or

- (b) (i) Design full adder using NOR gates. (8)
- (ii) With neat diagram explain carry look ahead adder. (8)
13. (a) (i) Using 8x1 multiplexer realize the following Boolean function (8)
 $F(a,b,c,d) = \Sigma(0,1,2,4,5,7,8,9,12,13)$
- (ii) Explain about BCD to decimal decoder. (8)

Or

- (b) Design a combinational logic circuit to convert gray code to binary code. (16)
14. (a) Design a MOD-6 synchronous counter using J-K flip flops. (16)

Or

- (b) (i) With neat diagram explain the operation of 4-bit universal shift register. (10)
- (ii) Briefly discuss about the classification of sequential circuit. (6)
15. (a) Design an asynchronous circuit that will output only the second pulse received whenever a control input is asserted from LOW to HIGH state and will ignore any other pulse. (16)

Or

- (b) What is meant by hazard? Briefly discuss about the types of hazards. Also discuss how to eliminate all the types of hazards. (16)