

1171**Code : 15EE-34T**

Register
Number

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III Semester Diploma Examination, April/May-2017**DIGITAL ELECTRONICS****Time : 3 Hours]****[Max. Marks : 100**

- Note :** (i) Answer any **six** questions from Part-A. Each question carries **5** marks.
(ii) Answer any **seven** questions from Part-B. Each question carries **10** marks.

PART – A

1. Define :

- (a) Threshold voltage
- (b) Power dissipation
- (c) Positive logic
- (d) Fan in
- (e) Propagation delay

2. (a) Define : (i) Parity bit
(ii) byte

(b) Mention various number system with their radix (any 3)

3. List the five rules of Boolean Algebra.

4. Explain OR & NAND with logic diagram, Boolean function and truth table.

5. Define decoder. What are the applications of decoder ?

6. Explain half adder with block diagram using AND & X-OR gate.

7. Define flip-flop. List the applications of flip-flop.

8. Explain working of RS clocked flip-flop using NAND gates with truth table.

9. Explain interfacing TTL IC with LED.

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PART – B

10. (a) List the advantages and disadvantages of TTL. **5**
 (b) Write explanation of ASCII and Gray code. **5**
11. (a) (i) Multiply $11011_{(2)} \times 1101_{(2)}$ **2**
 (ii) What is the result of $BD7_{(16)} + E78_{16}$? **2**
 (b) Realise AND, OR and EX-OR gate using NAND gates. **6**
12. (a) Simplify Boolean expression using Karnaugh maps (K maps) **5**
 $D = \overline{A}BC + A\overline{B}\overline{C} + ABC + \overline{A}\overline{B}C + \overline{A}BC$
 (b) Explain commutative and associative law with example. **5**
13. (a) Explain working of priority encoder. **5**
 (b) Explain working of 1 : 4 DMUX with block diagram. **5**
14. (a) Explain working of BCD to 7 segment decoder. **6**
 (b) Define decoder and list its applications. **4**
15. (a) Define shift register and list the types of shift registers. **1 + 4**
 (b) Explain working of JK flip flop using NAND gates with truth table. **5**
16. Explain working of 4 bit asynchronous decade counter with block diagram truth table and timing diagram. **10**
17. (a) Explain 3 bit synchronous up counter. **6**
 (b) Convert the following into Hexadecimal. **4**
 (i) $894_{(10)}$
 (ii) $375_{(10)}$
18. (a) Explain operation of weighted resistor DAC with diagram. **6**
 (b) Explain interfacing CMOS with relay. **4**
19. (a) Convert from binary to hexadecimal **4**
 (i) 101011.11011
 (ii) 1010100011110101.1001
 (b) Explain MOS dynamic memory cell. **6**

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