C14–EE–505

4640

BOARD DIPLOMA EXAMINATION, (C–14)
OCT/NOV—2016
DEEE—FIFTH SEMESTER EXAMINATION

DIGITAL ELECTRONICS

Time : 3 hours]   [*Total Marks* : 80

PART—A   3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Distinguish between weighted and unweighted codes.

2. Draw the symbols of the following two-input logic gates :
   (a) AND
   (b) OR
   (c) NAND

3. Compare between the TTL, CMOS and ECL logic families.

4. List any three IC numbers of two-input digital IC logic gates.

5. Define the following characteristics of digital ICs :
   (a) Fan-out
   (b) Noise margin

6. Draw the full-adder using two half-adders and OR gate.

7. Compare the performance of serial adder with parallel adder.

8. State the need of preset and clear inputs of flip-flops.

9. Draw the NAND latch and write its truth table.

10. Distinguish between RAM and ROM.

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PART—B   10×5=50

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Instructions : (1) Answer *any* **five** questions.

              (2) Each question carries **ten** marks.

              (3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. *(a)* Briefly explain the significance of parity bit.   3

     (b) Subtract the 45_{10} from 52_{10} using 2's complement method.   4

     (c) Simplify the logic expression $Y \quad A\overline{B} \quad \overline{AB}$.   3

12. Draw and explain CMOS NAND gate.   10

13. Draw and explain TTL NAND gate with open collector.   10

14. Draw and explain the decimal to BCD encoder.   10

15. *(a)* List any three applications of decoders.   3

     (b) Draw and explain the operation of 4 × 1 multiplexer.   7

16. *(a)* Distinguish between synchronous and asynchronous counters.   3

     (b) Draw and explain clocked *S-R* flip-flop using NAND gates.   7

17. Draw and explain 4-bit asynchronous counter.   10

18. *(a)* Draw and explain the basic principle of working of diode ROM.   6

     (b) Distinguish between EEPROM and UVPROM.   4

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