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BOARD DIPLOMA EXAMINATION, (C–09)
OCT/NOV—2013
DECE—THIRD SEMESTER EXAMINATION

DIGITAL ELECTRONICS

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

PART—A

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

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

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

1. Explain the uses of the following alphanumeric codes :

   (a) ASCII

   (b) EBCDIC

2. Construct a given decimal number into octal and hexadecimal number system :

   (a) 908

   (b) 76

   (c) 753

3. State De Morgan's theorems.

4. State the need for a tri-state buffer.

5. Draw the logic circuit of one bit comparator.

6. Write the need for preset and clear inputs.

7. List any two IC numbers for—

(a) flip-flops;

(b) registers;

(c) counters.

8. Draw NAND and NOR latches.

9. Define the following terms :

(a) Resolution

(b) Monotonocity

(c) Accuracy

10. Write any three differences between flash ROM and NV RAM.

PART—B

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. Draw and explain CMOS NAND gate and explain its operation. 4+6

12. By applying De Morgan's theorems and postulates simplify the logic expressions :

    (a) $\overline{(A \quad B)\overline{CD} \quad E \quad \overline{F}}$ 5

    (b) $\overline{\overline{(A \quad B)} \quad \overline{C}}$ 5

13. Draw and explain 2's compliment parallel adder-subtractor.

                                                             4+6

14. *(a)* Draw and explain master/slave *J-K* flip-flop.   5

    (b) Draw and explain level clocked *D* flip-flop with the help of truth table.   5

15. *(a)* Realise a half-adder using NOR gates only.   4

    (b) Draw and explain 3   8 decoder.   3+3

16. Draw and explain the working of universal shift register.   4+6

17. Explain *A-D* conversion using successive approximation method.   4+6

18. *(a)* Explain the working principle of NV RAM.   3+3

    (b) Differentiate between EEPROM and UVPROM.   4

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