3237

BOARD DIPLOMA EXAMINATION, (C–09)
SEPTEMBER/OCTOBER - 2020
DCE—THIRD 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. Compare weighted and unweighted codes.

2. State De Morgan's theorems.

3. List any three digital logic families.

4. Draw half-adder circuit and write its truth table.

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

6. Define modulus of a counter.

7. Draw the circuit of NAND latch and write its truth table.

8. State the need for preset and clear inputs in a flip-flop.

9. Compare static RAM and dynamic RAM.

10. Define the terms 'resolution' and 'accuracy' for a D/A converter.

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)* Realize the basic gates using NAND and NOR gates.   6

      (b) Explain the importance of parity bit.   4

12. Draw CMOS NAND gate circuit and explain its operation.

                                       5+5=10

13. *(a)* Explain the working of a serial adder with block diagram.   7

      (b) Compare the performance of serial adder and parallel adder.   3

14. Draw the circuit diagram of BCD to Decimal Decoder and explain its working.   5+5=10

15. *(a)* Explain the working of level clocked *J-K* flip-flop with truth table and circuit diagram.   7

      (b) Write about race around condition.   3

16. Draw and explain the working of 4-bit shift left register.

                                       5+5=10

17. Explain D/A conversion using binary weighted resistors method.   10

18. *(a)* Define the terms *(i)* memory read operation, *(ii)* memory write operation and *(iii)* memory access time.   6

      (b) Distinguish between EEPROM and UVPROM.   4

★ ★ ★