4241

BOARD DIPLOMA EXAMINATION, (C–14)
OCT/NOV—2018
DECE—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. Draw the basic logic gates AND, OR, NOT Gates with Truth tables.

2. Convert $(1101.101)_2$ into octal, hexa-decimal and decimal numbers.

3. State the need for a tristate buffer.

4. Write the importance of Parity bit.

5. List the important characteristics of Digital ICS.

6. State the need for a register.

7. Draw Half adder circuit with truth table.

8. Draw NAND Latch with Truth Table.

9. List any three applications of flip flops.

10. Distinguish between RAM and ROM.

PART–B 10×5=50

11. Simplify the Booleam expression using k map and implement using basic Gates

$$F(A,B,C,D) = A'B'D' + ABC'D' + A'BD + ABCD'$$

12. Draw and explain TTL NAND Gate with Totem pole output.

13. State and explain De-Morgan's theorems.

14. Draw and explain 2's compliment parallel adder/subtractor circuit.

15. a) Draw and explain the operation of 4×1 multiplexer.

    b) List applications of multiplexer.

16. Draw and explain clocked SR flip flop using NAND Gates with truth table.

17. Explain the working of 4 bit shift left register with a circuit and timing diagram.

18. Draw and explain the working of 4 bit asynchronous counter.

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