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C14–EC–305

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BOARD DIPLOMA EXAMINATION, (C–14)

SEPTEMBER/OCTOBER - 2020

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. Convert the given binary number 110101·1001 into octal.

2. Write the use of weighted and unweighted codes.

3. What is the importance of parity bit?

4. List the IC numbers of TTL NOR, XOR and INVERTER.

5. Draw XOR circuit using NAND gates only.

6. List any three applications of demultiplexer.

7. What is the necessity of clock in digital circuits?

8. Draw the circuit of NAND latch with truth table.

9. What is race condition in J-K F-F and how to avoid it?

10. List any three applications of counters.

PART—B

10×5=50

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)* Convert $(845)_{10}$ into its equivalent BCD and Exess-3 code. 4

(b) Draw the basic logic gates with truth tables. 6

12. *(a)* Realize basic gates using NAND only. 6

(b) Write a short note on codes. 4

13. Explain the working of open collector TTL NAND gate. 10

14. Explain the working of 3 8 decoder circuit. 10

15. *(a)* What is a tri-state buffer? Write its need. 4

(b) Draw and explain the working of a 1-bit comparator circuit. 6

16. Draw and explain the working of clocked R-S flip-flop with timing diagram. 10

17. Draw and explain the working of universal shift register (74194). 10

18. Draw and explain the working of 4-bit asynchronous counter. 10

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