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C09–EC–305

3237

BOARD DIPLOMA EXAMINATION, (C–09)

OCT/NOV—2017

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. Define the characteristics of Propagation Delay and Noise Margin.

2. What are Universal gates?

3. Mention three uses of alphanumeric codes.

4. Draw the circuit of decimal to *BCD* encoder.

5. Give the applications of multiplexers.

6. Write about level triggering and edge triggering.

7. Mention any three applications of flip-flops.

8. List three IC no's for counters.

9. State the need for A/D and D/A converters.

10. Write any three differences between ROM and RAM.

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 the following Decimal numbers into Binary, Octal and Hexadecimal : 6

(i) 67

(ii) 145

(b) Convert the following Octal numbers into Binary and Hexadecimal : 4

(i) 473

(ii) 645

12. *(a)* Use Karnaugh map to simplify the Boolean expression : 5

$$Y \quad \overline{A}\overline{B} \quad A\overline{B} \quad AB$$

(b) Write Boolean expressions of product of maxterms from the following truth table : 5

Inputs			*Output*
A	*B*	*C*	*X*
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	0
1	1	0	1
1	1	1	0

13. Draw and explain a 4-bit parallel adder using full-adders with one example.

14. Draw a 2-bit digital comparator circuit and explain its working.

15. Draw JK flip-flop using SR flip-flops and explain its operation and write its truth table.

16. Draw and explain parallel in parallel out shift register.

17. *(a)* Explain the terms resolution, accuracy and monotonicity of converter. 5

(b) Draw the circuit for weighted resistors method of D/A converter. 5

18. *(a)* Write short note on memory modules in computer. 6

(b) Compare static RAM and dynamic RAM. 4

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