



C09-EC-305

3237

BOARD DIPLOMA EXAMINATION, (C-09)
APRIL/MAY—2015
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) Answer should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Draw the symbols of AND, OR and NOT gates.
2. Write the 2's compliment of each of the following :
(a) 00001111
(b) 01011010
3. List different number systems.
4. Realize a half-adder circuit using NOR gates only.
5. Draw a simple tri-state buffer.
6. Write about level triggering and edge triggering.
7. List three IC nos for counters.
8. Draw a level clocked T flip-flop.
9. Write any three differences between ROM and RAM.
10. Draw the circuit of A/D converter using counter method.

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) Draw the sum of products circuit for the equation
$$Y = \overline{A}\overline{B}\overline{C} + \overline{A}B\overline{C} + A\overline{B}\overline{C} + ABC.$$
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- (b) Write Boolean expressions of sum of minterms from the following truth table and simplify :

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<i>Inputs</i>			<i>Output</i>
<i>A</i>	<i>B</i>	<i>C</i>	<i>X</i>
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0

- 12.** (a) Draw the circuit of CMOS NAND gate. 5
 (b) Compare TTL, CMOS and ECL logic families. 5
- 13.** Draw and explain the logic circuit of 4 to 1 multiplexer.
- 14.** Draw the block diagram of a serial adder and explain.
- 15.** Draw JK flip-flop using SR flip-flops and write a short note on explaining its operation.
- 16.** Draw and explain the working of four-bit bidirectional shift register.
- 17.** (a) Write a short note on memory modules in computer. 6
 (b) Explain the terms resolution and accuracy. 4
- 18.** (a) Distinguish between EEPROM and UVROM. 5
 (b) Draw weighted resistors method of D/A converter. 5
