

Roll No

EC - 403

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B.E. IV Semester

Examination, June 2013

Digital Electronics

Time : 3 Hours

Maximum Marks : 70/100

- Note:** i) Attempt one question from each unit.
ii) All questions carry equal marks.

Unit - I

1. a) Convert the following :
 - i) $(5976)_{10} = (\quad)_{\text{Excess 3}}$
 - ii) $(1011010111)_2 = (\quad)_{\text{gray}}$
 - iii) $(1000101.111)_2 = (\quad)_{10}$
 - iv) $(795.23)_{10} = (\quad)_8$
- b) Find the minimal sum of products for the Boolean expression $f = \sum(1, 2, 3, 7, 8, 9, 10, 11, 14, 15)$ using the Quine-McClusky method.

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2. a) Using k map method simplify the following function, obtain its
 - i) Minimum sum of product and
 - ii) Minimum product of sum.
$$f = \sum(1, 2, 5, 6, 7, 10, 14, 15)$$
- b) Simplify the following function.
 - i) $A\bar{B}C + (\bar{B} + \bar{C})(\bar{B} + \bar{D}) + \overline{A + C + D}$
 - ii) $ABCD + AB(\overline{CD}) + (\overline{AB})CD$

Unit - II

3. a) Realise the following function as
i) Multilevel NAND NAND gate network and
ii) Multilevel NOR NOR network.

$$f = A\bar{B}C + B(C + \bar{D}) + \bar{A}\bar{D}$$

- b) Design and implement look ahead carry generator.

OR

4. Realise the following Boolean function using multiplexer.

$$f = \bar{B}\bar{C}\bar{D} + BD + (\bar{A}C + B) + ABC$$

Unit - III

5. a) Discuss the working of Bistable multivibrator using 555 timer.
b) Discuss the working of master slave flip flop.

OR

6. Design MOD-7 counter using J-K flip flop.

Unit - IV

7. Explain the following:

- a) EEPROM
b) RAMBUS

OR

8. Discuss the following:

- a) PAL
b) DRAM

Unit - V

9. Explain the following logic families

- i) TTL
ii) CMOS.

OR

10. How is interfacing between MOS and TTL done.