EC - 403 B.E. IV Semester

Examination; December 2012 Digital Electronics

Time: 3 Hours Maximum Marks: 70/100

Note : I. Attempt one question from each unit. 2. All question carry equal marks.

UNlT-1

(i) $(1234)_{10} = (\quad)_{\text{excess-3}}$

(ii) $(ABCIF)_{16} = (\quad)_8$

(iii) $(10111.1011)_2 = (\quad)_{10}$

(iv) $(64.23)_{10} = (\quad)_8$

b) Find the minimal sum of products for the Boolean expression $f = \sum(1, 3, 4, 5, 9, 10, 11) + \sum\phi(6, 8)$ using Quine Mccluskey method.

OR

II. a) Using K-map method simplify the following function, obtain its

(i) tniOjimum sum of product and

$f = \sum(1, 3, 4, 5, 6, 7, 9, 12, 13)$

b) Simplify the following logical expression

(i) $(\bar{A} + B + \bar{C})(\bar{A} + B + D + E)(C + D)$

(II) $\bar{A}\bar{B}C + BC + AC$

(ii) minimum productof sum.

UNIT-II

III a) Realise ihc following function as (i) multilevel NAND - NAND gale network and (ii) multilevel NOR-NOR network.

$$f = B(A + CD) + \overline{A\,C}$$

b) Design and implement full substractor

OR

IV. Realise the following Boolean function using multiplexer.

$$f = \overline{AB} + B(C + D) + \overline{(AB + C)} + \overline{ABD}$$

UNIT-III

V a) Discuss the working of astable multivibrator using 555 times.

b) Discuss the working of J-K flip flop. What is race around condition.

..... OR

VI Design a MoD - 8 converter using J-K flip flop

UNIT-IV

VII.Explain the following

a) I'LA

b) I'ROM

OR

VIII.Discuss the following a) E0PROM b) SRAM

UNIT-V

a) Explain the following logic family. a) DTL b) l'MOS

OR

X.I low is inter facing between TTL and MOS done.

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