3E2075

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B.Tech. (Sem. III) (Main/Back) Examination, January - 2012
Digital Electronics
(Common for Comp. Engg. & IT)

Time : **3** Hours] [Total Marks : **80**
[Min. Passing Marks : **24**

Instructions to Candidates :

*Attempt any **five questions** selecting **one question** from **each unit**. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.*

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. Nil 2. Nil

UNIT-I

1 (a) What is meant by the base of number system ? Give example to illustrate the role of the base in positional number system. **6**

(b) Convert the following numbers from the given base to the other base indicate –

(i) Binary $(11011101)_2 \rightarrow (?)_{10}, (?)_8$

(ii) Octal $(632.25)_8 \rightarrow (?)_{10}, (?)_{Hex}$

(iii) Hex $(2AC5.2B)_{16} \rightarrow (?)_{10}, (?)_{Octal}$ **10**

OR

1 (a) Find by inspection the complement of each of the following expression and then simplify it.

(i) $\bar{x}\left(\bar{y}+\bar{z}\right)\left(x+y+\bar{z}\right)$

(ii) $\left(x+\bar{y}+\bar{z}\right)\left(y+\overline{xz}\right)\left(z+\overline{xy}\right)$

(iii) $\bar{w}+\left(x+y+\overline{yz}\right)\left(x+\bar{y}z\right)$ **8**

(b) Define Universal Logic Gates. Redraw the circuit in Figure 1 using Universal Logic Gates.