RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College under University of Calcutta)

SECOND YEAR

B.A./B.Sc. FOURTH SEMESTER (January – June) 2015

Mid-Semester Examination, March 2015

Date : 21/03/2015 **PHYSICS (General)**

Time : 12 noon – 1 pm Paper : IV Full Marks : 25

Answer <u>any five</u> questions : [5×5]

1. Draw I-V characteristic of P-N junction diode and explain. What is Zener breakdown? [3+2]
2. Find the relation between α and β. Define α and β. [3+2]
3. Explain with a diagram an universal gate. Which one is an universal gate NAND or NOR. [4+1]
4. State, explain and prove De Morgan's theorem using truth table. [5]
5. a) $(11001)_2 - (10001)_2$ make this subtraction by 1's compliment method. [4]
   b) Make 2's compliment of $(1101)_2$ [1]
6. a) $(10{\cdot}25)_{10} = (X)_2$ find the value of X [2·5]
   b) $(6{\cdot}75)_{10} = (Y)_2$ find the value of Y. [2·5]

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