RAMAKRISHNA MISSION VIDYAMANDIRA

(A Residential Autonomous College under University of Calcutta)

First Year, Second Semester (January – June), 2011
Mid-Semester Examination, March, 2011

ELECTRONICS (General)

Date : 10 March 2011 Full Marks : 25
Time : 11am – 12noon

Attempt <u>any five</u> questions : [5×5 = 25]

1. a) What is fermi energy level?
   b) Show the variation of fermi energy level with n type and p type doping profile. [2+3]
2. a) Define electron mobility.
   b) How does an extrinsic semiconductor behave like an intrinsic semiconductor at high temperature?
   c) What is band gap energy? [2+2+1]
3. a) Why can the barrier potential across p-n junction not be measured with normal voltmeter?
   b) Show how the barrier width change with doping profile. [2+3]
4. a) State the use of filters in rectifiers.
   b) Compare between full wave and bridge rectifier. [2+3]
5. Describe the structure and operation of BJT & JFET in brief. [5]
6. Write down the different modes of biasing a BJT. What do you mean by " pinch off voltage" of a JFET? [5]

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