## **RAMAKRISHNA MISSION VIDYAMANDIRA** (Residential Autonomous College affiliated to University of Calcutta) FIRST YEAR [2015-18] B.A./B.Sc. FIRST SEMESTER (July – December) 2015 Mid-Semester Examination, September 2015 **ELECTRONICS** (General) Date : 15/09/2015 Paper : I Full Marks : 25 Time : 12 noon – 1 pm The intrinsic carrier density at room temp in Ge is $2.37 \times 10^{19}$ /m<sup>3</sup>. If the electron and hole 1. a) mobilities are 0.38 and 0.18 m<sup>2</sup>/V-s respectively, calculate the resistivity. [5] Define Fermi Level. What is the significance of Fermi Level in Semiconductor Device. b) [5] Draw and explain the working principle of Bridge Rectifier. Also derive the working formula of the 2. rectifier. [10] Write short notes (any one) : [1×5] 3. a) Mass Action Law b) V–I Characteristics of Diode c) Extrinsic Semiconductor

- × -

RAMAKRISHNA MISSION VIDYAMANDIRA (Residential Autonomous College affiliated to University of Calcutta)			
FIRST YEAR [2015-18] B.A./B.Sc. FIRST SEMESTER (July – December) 2015 Mid-Semester Examination, September 2015			
Date : 1	15/09/2015	ELECTRONICS (General)	
Time : 1	12 noon – 1 pm	Paper : I Ful	l Marks : 25
1. a) b)	mobilities are	carrier density at room temp in Ge is $2.37 \times 10^{19}$ /m <sup>3</sup> . If the electron and h $0.38$ and $0.18$ m <sup>2</sup> /V-s respectively, calculate the resistivity. Level. What is the significance of Fermi Level in Semiconductor Device.	hole [5] [5]

2. Draw and explain the working principle of Bridge Rectifier. Also derive the working formula of the rectifier. [10]

[1×5]

- 3. Write short notes (<u>any one</u>) :
  - a) Mass Action Law
  - b) V-I Characteristics of Diode
  - c) Extrinsic Semiconductor

— × ——