RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

FIRST YEAR [2017-20]

B.A./B.Sc. FIRST SEMESTER (July – December) 2017

Mid-Semester Examination, September 2017

Date : 13/09/2017

ELECTRONICS (General)

Time : 12 noon – 1 pm

Paper : I

Full Marks : 25

*Answer **any five** of the following questions :* [5×5]

1. Explain how the energy band is created in a solid. [5]

2. Give two examples of donor atoms. Explain how free carriers are produced in a semiconductor by doping it with donor atoms. [1+4]

3. Draw the energy band diagram for a p-type semiconductor and indicate the conduction band, valence band, acceptor level and forbidden energy gap. Under which condition an extrinsic semiconductor would act as an intrinsic one and why? [2+3]

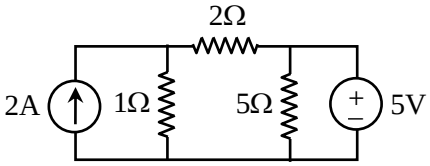
4. State Norton's theorem. Mention the steps to be followed to solve an electric network using Norton's theorem. [1+4]

5. Draw and explain the V-I characteristic of a PN junction diode. [5]

6. What is doping? Why is it required? [2+3]

7. Draw a circuit diagram showing an application of PN junction diode. Why is a PN junction called a 'Diode'? [3+2]

8. Determine the current through the 1Ω resistor in the following circuit. [5]



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