

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College under University of Calcutta)

FIRST YEAR

B.A./B.SC. FIRST SEMESTER (July – December) 2014

Mid-Semester Examination, September 2014

Date : 16/09/2014

ELECTRONICS (General)

Time : 12 noon – 1 pm

Paper : I

Full Marks : 25

1. Answer **any five** questions of the following : [5×3]
- a) What is Fermi Level?
 - b) Justify the differences between Conductor, Semi Conductor & Insulator.
 - c) Define forbidden energy gap.
 - d) 'Diode works in forward bias condition' —Explain.
 - e) Define cut-in voltage of a ordinary PN junction diode.
 - f) What is dynamic resistance of a diode.
2. A halfwave rectifier supplies power to a $1\text{K}\Omega$ load. The input supply voltage is 220V rms. Neglecting forward resistance of the diode, Calculate—
- a) V_{dc}
 - b) I_{dc}
 - c) ripple voltage (rms value) [10]

Or,

A sinusoidal voltage of amplitude 25 volts and frequency 50Hz is applied to a halfwave rectifier using PN diode. No filter is used and the load resistor is 1000Ω . The forward resistance R_f of ideal diode is 10Ω . Calculate—

- a) dc power output
- b) ac power input
- c) rectifier efficiency. [10]

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