EASTERN UNIVERSITY, SRI LANKA

SECOND EXAMINATION IN SCIENCE - 2007/2008

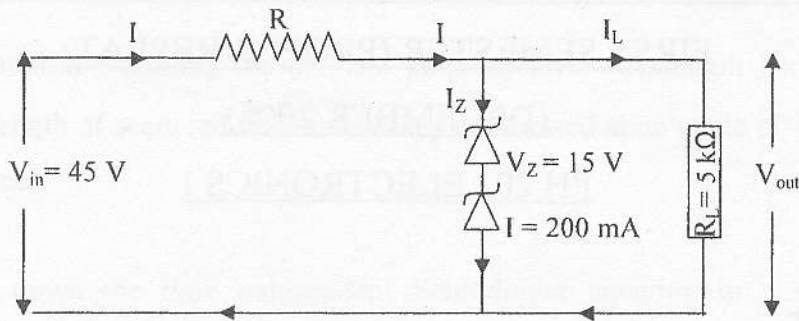## FIRST SEMESTER (PROPER/REPEAT)

(DECEMBER 2008)

PH 202 ELECTRONICS I

Time: 01 hour.

Answer <u>ALL</u> Questions

1. What do you mean by the terms intrinsic semiconductor, extrinsic semiconducto
junction break down, Zener break down and avalanche break down?

Two zener diodes, each has 15 V and 200 A for providing a stabilized supply to a lo
resistance 5 k Ω are shown in the circuit. If the circuit is connected to a 45 V unregulat
supply, determine;

(i) Regulated output voltage

(ii) Series resistance R required

(iii) Current across the load resistance R_L

(iv) Total current in the circuit

(v) Current across the Zener diode.

2. Explain using a circuit diagram the operation of a half wave rectifier. Sketch and label
clear diagrams for

(i) Input wave form

(ii) Output wave form across the resistance when the capacitor is absence

(iii) Output wave form across the resistance when the capacitor is present

The output of a half wave rectifier is connected to a load resistance of 2 kΩ through
capacitor filter of 10 µF. The r.m.s value of the input voltage of the primary coil of th
transformer and its frequency are 220 V and 40 Hz respectively. If the turn's ratio of th
transformer is 5:1, calculate;

(i) r.m.s ripple voltage

(ii) DC component of load voltage

(iii) Total load power