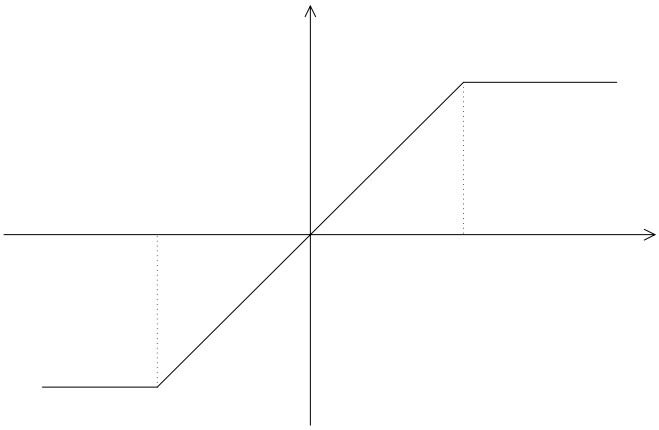
King Fahd University of Petroleum and Minerals
Electrical Engineering Department

EE203 Electronics I
Exam # 1

Name:	I.D#	No.	Sec.#03

Question No.1

Design a circuit using normal diodes, zener diodes, batteries and/or resistors that exhibits the voltage transfer characteristic shown in Fig.1. Explain thoroughly the operation of your circuit.



Question No. 2

Assume that the diode needs 0.7V to conduct and the sinusoidal input signal has amplitude of 155V and frequency of 60Hz. Calculate the ripple and DC values at the output terminal TP1.

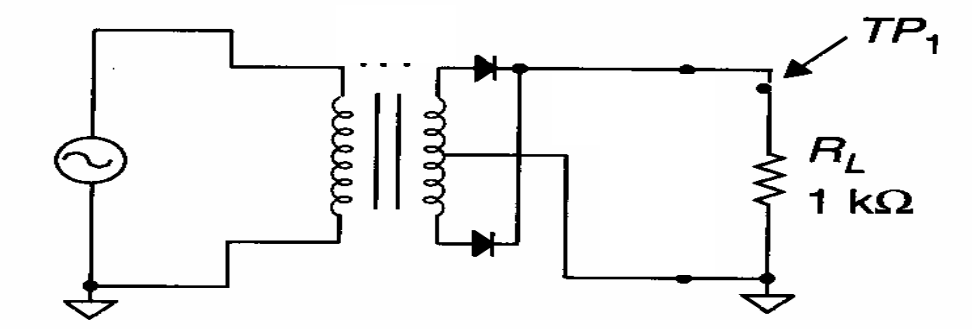


Fig. 2

Question No. 3

Assume that B = 50 for the circuit in Fig. 3,

(a) Show that the BJT is **not** working in active region.

(b) Just suggest (no need for prove) how you can redesign the circuit to work in active region.

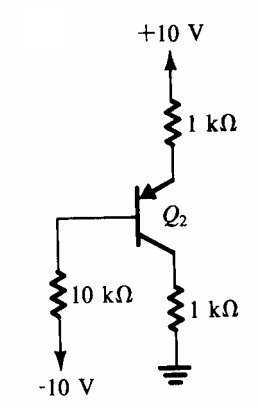


Fig.3