The University of Sheffield
Department of Electronic and Electrical Engineering

EEE123 - Problem Sheet

Diode Conduction State

Q1 For the circuits of figure 1, identify the conduction state of the diode and calculate either the reverse bias voltage or the forward bias current, as appropriate. Assume that the diodes perfectly block current flow for all anode - cathode voltages less than 0.7V (the reverse bias state) and conduct perfectly if the circuit tries to make the anode - cathode voltage greater than 0.7V. *Note that the answers give the magnitude of the reverse bis voltage or forward current as appropriate. Since answers will let you avoid the guess stage, only some answers are given.*

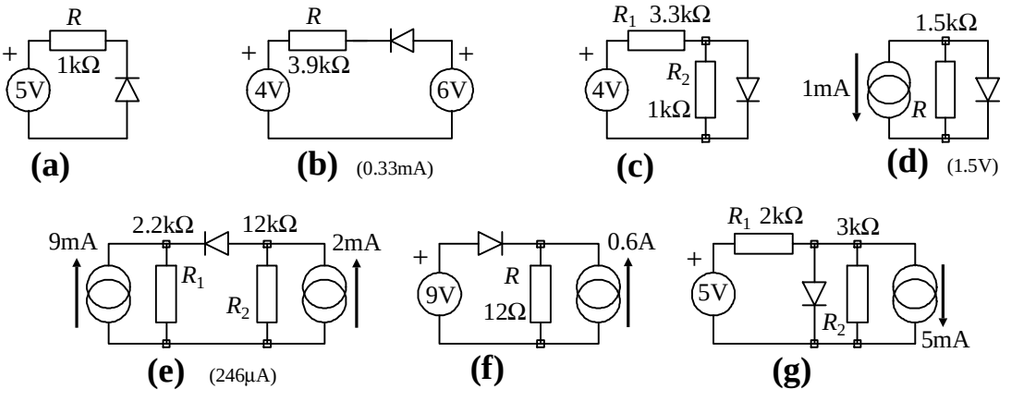

Figure 1

Q2 The circuits of figure 2 are the same as figure 1 except that the source (or one of the sources) has been changed from a fixed value to a variable one. Find the value of the variable source at which the diode changes from a conducting to a non-conducting state.

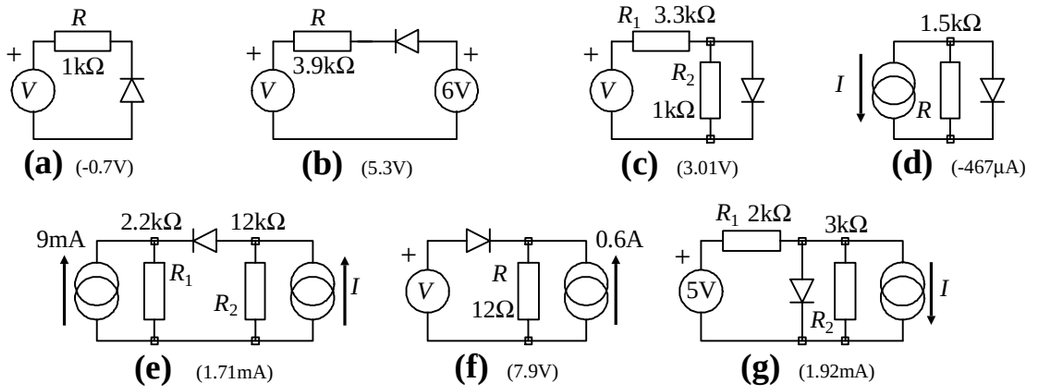

Figure 2