Design Engineering – DE1.3 Electronics 1

Problem Sheet 4 (Topics 9 - 11)

Key: [A] = easy …… [E] = hard

Note: A "dimensioned sketch" should show the values on the x and y axes corresponding to significant places on the corresponding graph.

1. [B] Find the gains $X/U$ and $Y/U$ in the following circuits:

![Circuit Diagram](image)

2. [C] State whether the feedback in the following circuits is positive or negative:

![Circuit Diagram](image)

3. [C] Find the gain $X/U$ in the following circuit:

![Circuit Diagram](image)

4. [C] Find expressions for $X$, $Y$ and $Z$ in terms of $U_1$, $U_2$ and $U_3$.

![Circuit Diagram](image)

5. [D] Choose values of $R_1$ and $R_2$ in circuit below so that $X = 2U_2 - 3U_1$:

![Circuit Diagram](image)