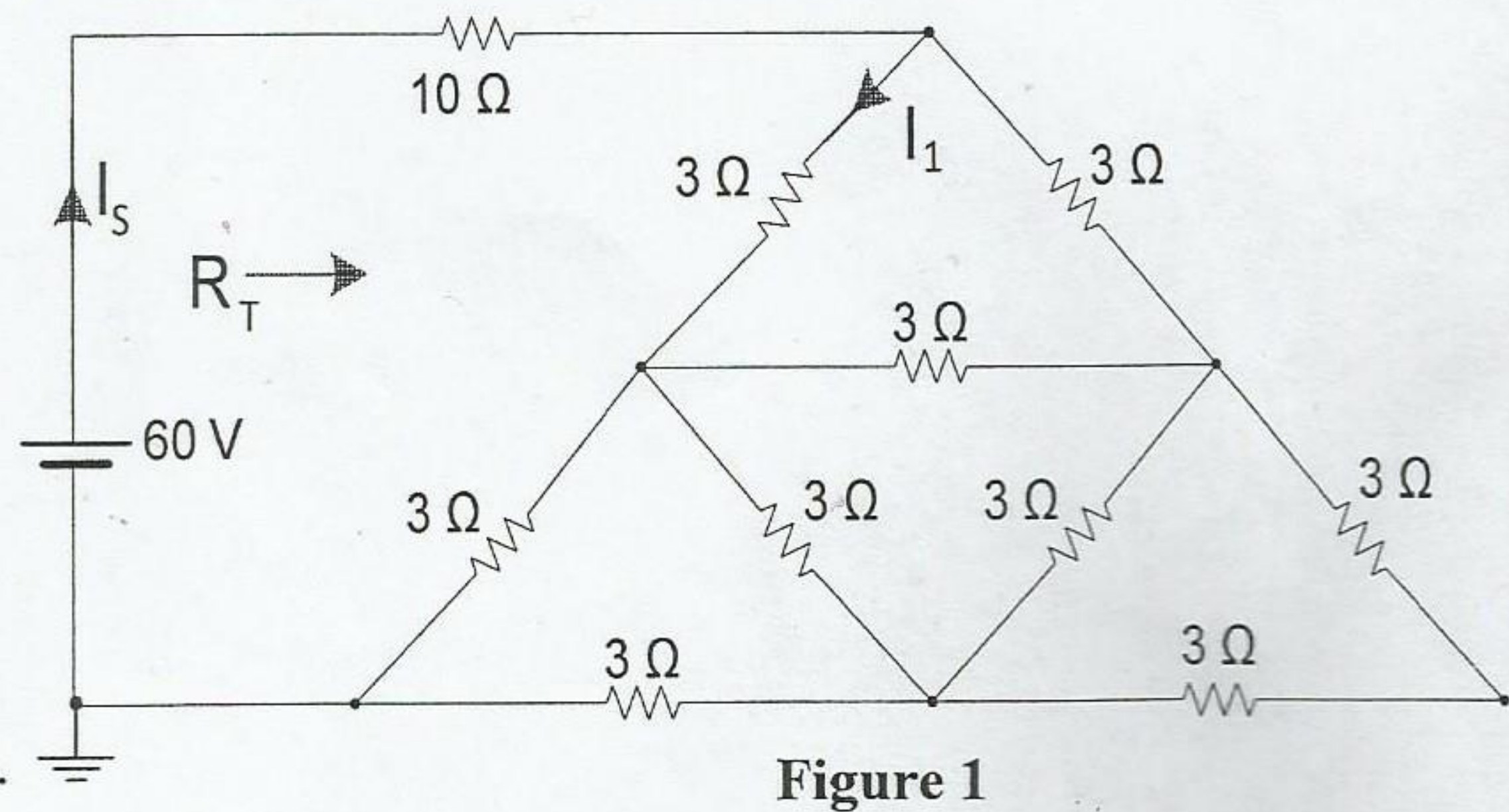| King Saud University | EE201 – Fundamentals of Electric Circuits |
| College of Engineering | Mid-term Exam I – 1st Semester 1435-1436 |
| Electrical Engineering Department | Time Allowed: 1 ½ Hours |

أستاذ المادة: رقم الطالب: اسم الطالب:
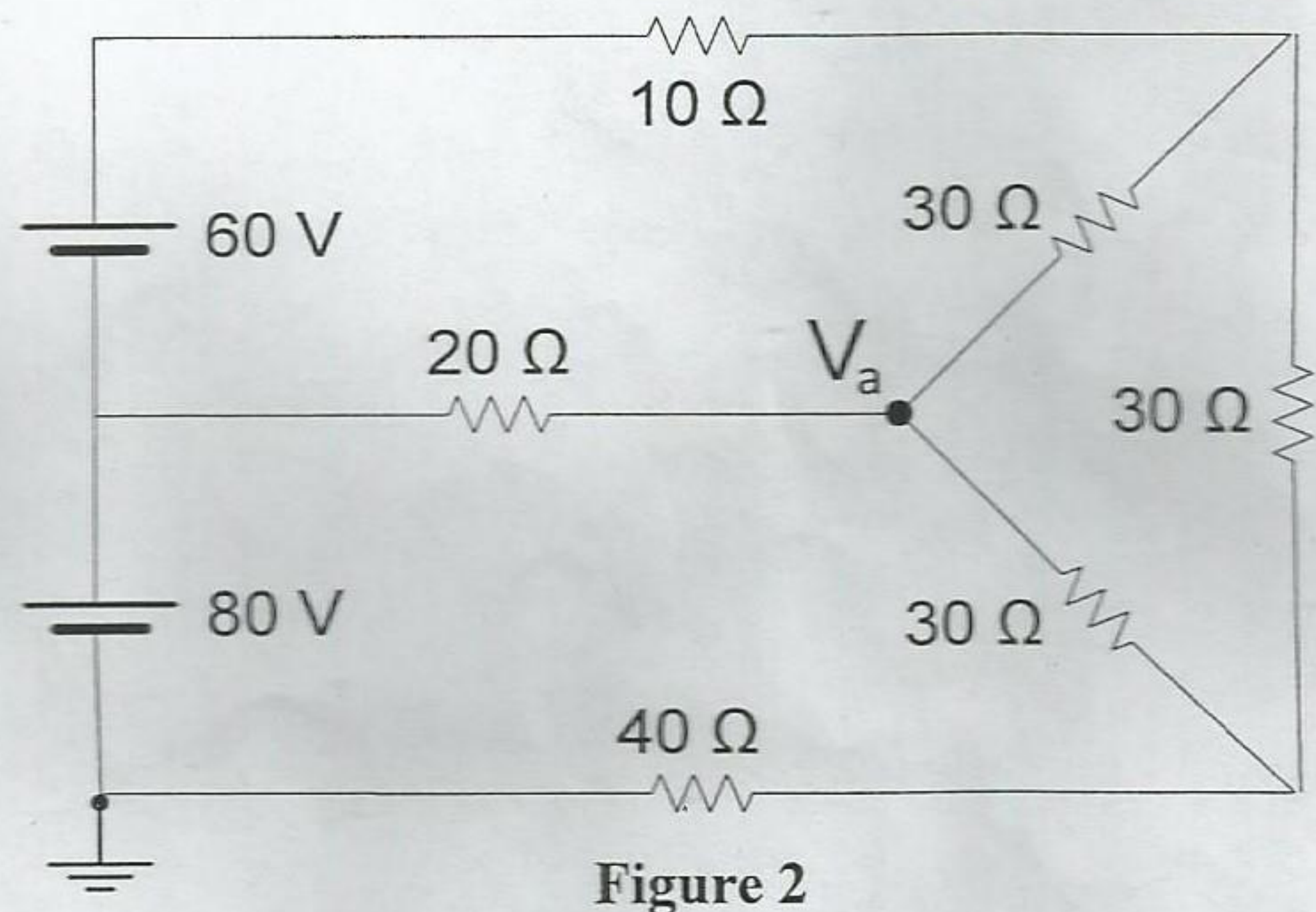
Question 1:

For the circuit shown in figure 1, find:

(a) The total input resistance 'R_T'.

(b) The total source current 'I_S'.

(c) The current 'I_1'.

(d) The total power dissipated by all resistors.

Figure 1

Question 2:

For the circuit shown in figure 2:

(a) Write down the Mesh equations for the circuit.

(b) Write down the Nodal equations for the circuit.

(c) Find the voltage 'V_a'.

Figure 2

Question 3:

For the circuit shown in figure 3:

(a) Find the voltage 'V_{ab}' using **Superposition theorem.**

(b) Find the Norton equivalent circuit between nodes 'a' and 'b'.

(c) If 'R_L' is connected between nodes 'a' and 'b', find the maximum power transfer to 'R_L'.

Figure 3