UNIT 10 EXERCISES

1) Consider the following circuit.

![Circuit Diagram]

a) If bulb D were removed from the circuit, would the potential difference across

(i) bulb A increase, decrease or remain the same? Explain your reasoning.

(ii) bulb B increase, decrease or remain the same? Explain your reasoning.

(iii) bulb C increase, decrease or remain the same? Explain your reasoning.

b) If a wire were added to the circuit as shown in the diagram below,

![Circuit Diagram with Wire Added]

would the potential difference across

(i) bulb A increase, decrease or remain the same? Explain your reasoning.

(ii) bulb B increase, decrease or remain the same? Explain your reasoning.

(iii) bulb C increase, decrease or remain the same? Explain your reasoning.
2) Consider the circuit below consisting of two nichrome wires in series.

![Circuit Diagram]

a) If the battery voltage is 1.5V, determine the voltage across each of the nichrome wires. Explain.

b) If the 30cm wire were replaced by a 40cm wire, determine the voltage across each of the nichrome wires. Explain.

c) Return to the original circuit. If the 20cm wire were replaced by a 40cm wire, determine the voltage across each of the nichrome wires. Explain.

3) Consider the circuit below.

![Circuit Diagram]

a) If the battery voltage is 1.5V, determine the voltage across each of the nichrome wires. Explain.

b) If a 30cm length of nicrome wire were added the circuit as in the diagram below,

![Extended Circuit Diagram]

(i) would the voltage across resister A increase, decrease, or remain the same? Explain.

(ii) would the voltage across resister B increase, decrease, or remain the same? Explain.