6 **(a)** Using energy considerations, distinguish between *electromotive force* and *potential difference*.

……

……

……

……

……

…….. [2]

(b) An electric hotplate is designed to operate on a power supply of 240 V and has two coils of wire of resistivity of 9.8×10^{-7} Ω m. Each coil of wire has a length of 16 m and cross-sectional area 0.20 mm^2.

(i) For one of the coils, calculate

1. its resistance,

resistance = …… Ω [2]

2. the power dissipation when a 240 V supply is connected across it.

power = …… W [2]

(ii) Fig. 6.1 shows how the two coils can be connected for the hotplate to operate at different powers.

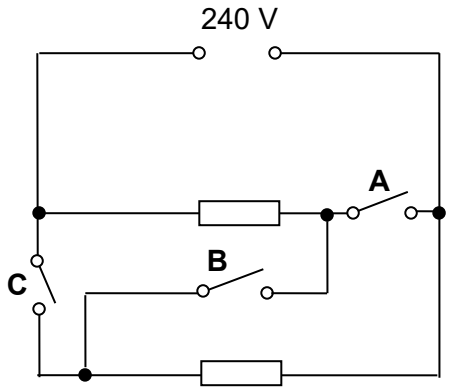

Fig. 6.1

On Fig. 6.2, fill up the table with “ON” or “OFF” to obtain the lowest and highest levels of operating power.

	switch A	switch B	switch C
Lowest			
Highest			

Fig. 6.2

[2]