5 **(a)** State two functions of capacitors in electrical circuits.

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1. .....

2. .....

[2]

(b) Three capacitors, each marked '30 μF, 6 V max', are arranged as shown in Fig. 5.1.

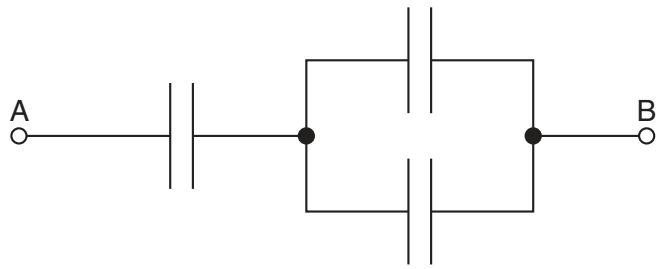

Fig. 5.1

Determine, for the arrangement shown in Fig. 5.1,

(i) the total capacitance,

capacitance = ... μF [2]

(ii) the maximum potential difference that can safely be applied between points A and B.

potential difference = ... V [2]

(c) A capacitor of capacitance 4700 μF is charged to a potential difference of 18 V. It is then partially discharged through a resistor. The potential difference is reduced to 12 V. Calculate the energy dissipated in the resistor during the discharge.

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energy = ... J [3]