7 **(a)** State two uses of capacitors in electrical circuits, other than for the smoothing of direct current.

1. .....

2. .....
[2]

(b) The combined capacitance between terminals A and B of the arrangement shown in Fig. 7.1 is 4.0 μF.

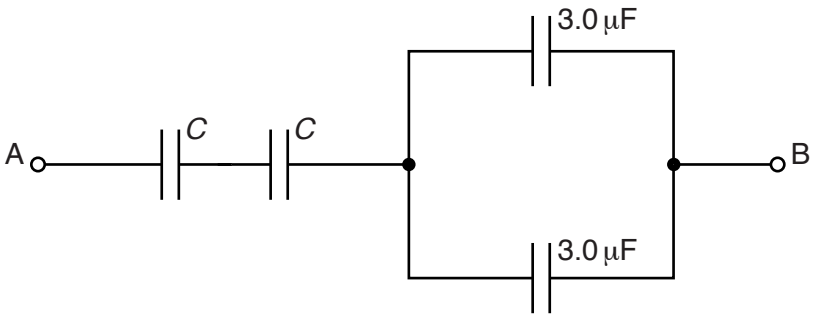

Fig. 7.1

Two capacitors each have capacitance *C* and the remaining capacitors each have capacitance 3.0 μF.

The potential difference (p.d.) between terminals A and B is 12 V.

(i) Determine the capacitance *C*.

C = ... μF [2]

(ii) Calculate the magnitude of the total positive charge transferred to the arrangement.

charge = ... μC [2]

(iii) Use your answer in **(ii)** to state the magnitude of the charge on one plate of

1. a capacitor of capacitance *C*,

charge = ... μC

2. a capacitor of capacitance 3.0 μF.

charge = ... μC
[2]

[Total: 8]