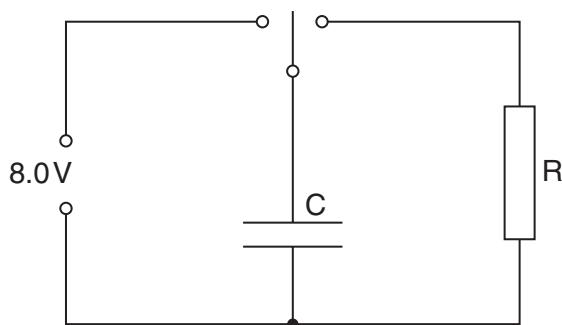
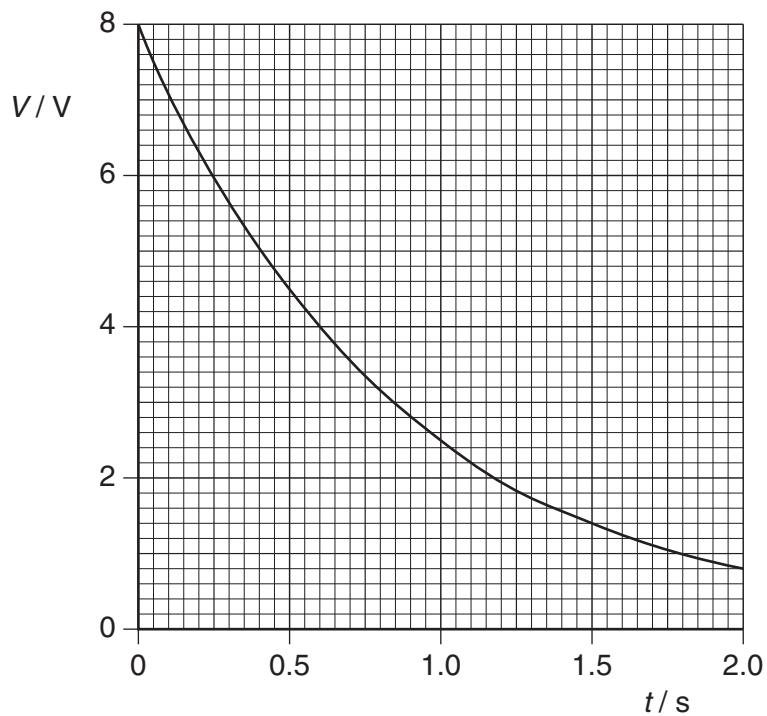


- 5 A capacitor C is charged using a supply of e.m.f. 8.0V. It is then discharged through a resistor R.
The circuit is shown in Fig. 5.1.

**Fig. 5.1**

The variation with time t of the potential difference V across the resistor R during the discharge of the capacitor is shown in Fig. 5.2.

**Fig. 5.2**

- (a) During the first 1.0s of the discharge of the capacitor, 0.13J of energy is transferred to the resistor R.
Show that the capacitance of the capacitor C is 4500 μF .

[3]

- (b) Some capacitors, each of capacitance $4500 \mu\text{F}$ with a maximum working voltage of 6V , are available.

For
Examiner's
Use

Draw an arrangement of these capacitors that could provide a total capacitance of $4500 \mu\text{F}$ for use in the circuit of Fig. 5.1.

[2]