

- 7 A student is using a power supply that produces a sinusoidal output. The meters on the supply show that the output voltage V has a root-mean-square (r.m.s.) value of 14V with a frequency of 750Hz.

The variation with time t of the output voltage V may be represented by the expression

$$V = V_0 \sin \omega t.$$

- (a) Determine the value of

(i) V_0 ,

$$V_0 = \dots \text{V} [1]$$

(ii) ω .

$$\omega = \dots \text{rad s}^{-1} [1]$$

- (b) A capacitor with a large capacitance is connected across the terminals of the supply.

Suggest and explain why this may lead to a large current from the supply.

.....

 [3]