

- 11 A bridge rectifier contains four ideal diodes A, B, C and D, as shown in Fig. 11.1.

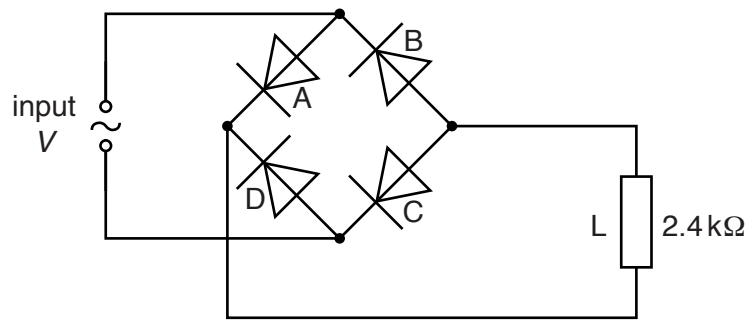


Fig. 11.1

The output of the rectifier is connected to a load  $L$  of resistance  $2.4\text{ k}\Omega$ .

- (a) On Fig. 11.1, mark with the letter P the positive terminal of the load. [1]
- (b) The variation with time  $t$  of the potential difference  $V$  across the input to the rectifier is shown in Fig. 11.2.

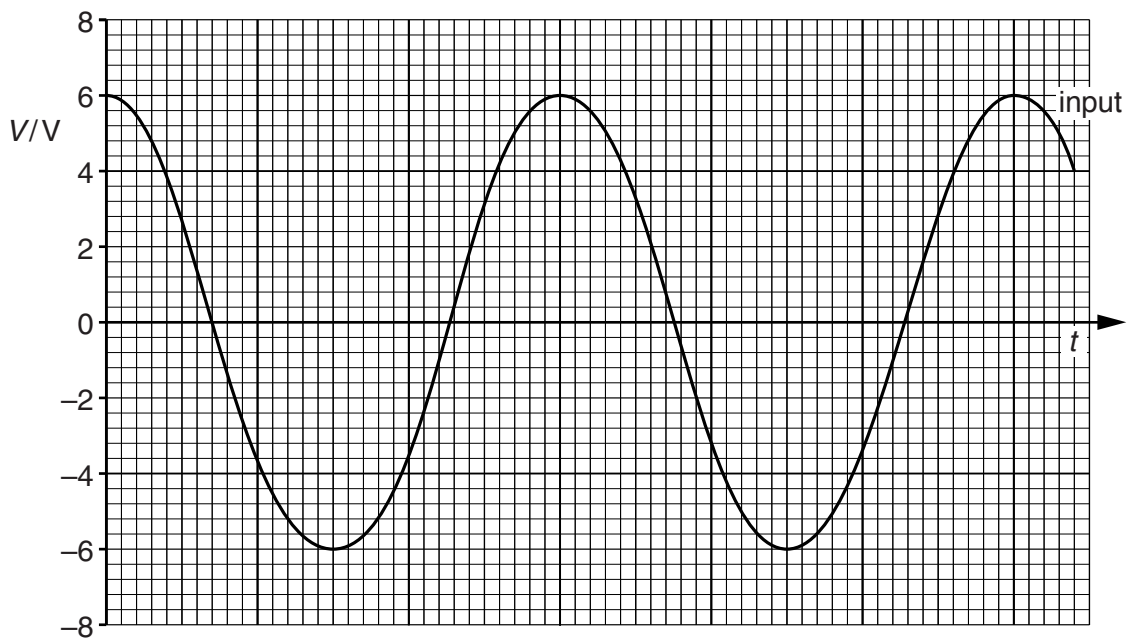


Fig. 11.2

Calculate the root-mean-square (r.m.s.) current in the load  $L$ .

r.m.s. current = ..... A [2]

(c) The potential difference across the load  $L$  is to be smoothed using a capacitor.

- (i) On Fig. 11.1, draw the symbol for a capacitor, connected to produce smoothing. [1]
- (ii) The minimum potential difference across the load  $L$  with the smoothing capacitor connected is  $3.0\text{ V}$ .

On Fig. 11.2, sketch the variation with time  $t$  of the potential difference across the load  $L$ . [3]

[Total: 7]