

## Questions on Power

**Q1**

What is the power of a lamp rated at (a) 6v 1A, (b) 240v 25A?

**Q2**

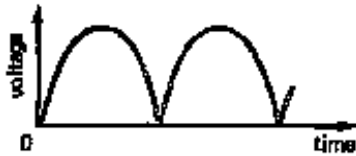
What is the maximum power in kilowatts of the appliance(s) that can be connected safely to a 240v 13A mains supply?

**Q3**

The largest number of 100W bulbs which can be safely run from a 240v 5A supply is  
A 2 B 5 C 10 D 12 E 20

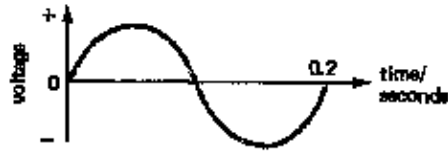
**Q4**

Does the waveform shown below represent dc or ac? Explain your answer.



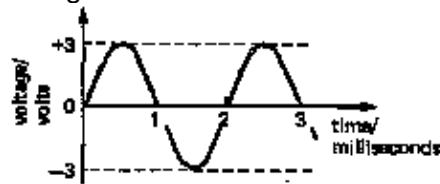
**Q5**

What is (a) the period, (b) the frequency, of the ac waveform shown below?



**Q6**

The waveform of an alternating voltage is shown below. What is (a) the period, (b) the frequency, (c) the peak voltage, (d) the r.m.s. voltage?



**Q7**

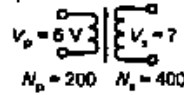
An ac supply lights a lamp with the same brightness as does a 12v battery. What is (a) the rms voltage, (b) the peak voltage, (c) the power of the lamp if it takes a current of 2A from the ac supply?

**Q8**

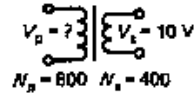
What is the turns ratio of a transformer in which (a)  $N_p=200$  and  $N_s=400$ , (b)  $N_p=600$  and  $N_s=300$ , (c)  $V_p=1v$  and  $V_s=4v$ , (d)  $V_p=10v$  and  $V_s=2v$ ?

**Q9**

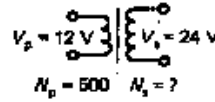
What is the value of (a)  $V_s$ , (b)  $V_p$ , (c)  $N_s$ , (d)  $N_p$ ?



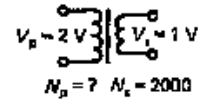
(a)



(b)



(c)



(d)

**Q10**

On a 240v ac supply a transformer takes a primary current of 200mA. What is the maximum current that should be delivered in the secondary if the output voltage is 480v?

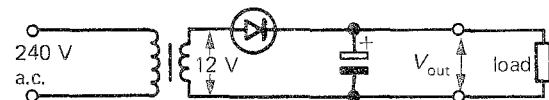
**Q11**

- What is meant by rectification? Name a component which is used to achieve it.
- What is meant by smoothing? Name a component which is used to achieve it.

**Q12**

This question refers to the drawing below.

- What is the function of (i) the transformer, (ii) the diode and (iii) the electrolytic capacitor?
- What would be the effect of using a capacitor of larger capacitance?
- How would  $V_{out}$  be affected if the resistance of the load decreased?



**Q13**

Draw a bridge rectifier circuit and say why it is better than the single diode circuit shown above.

**Q14**

For the voltage waveform shown below what is (a) the peak value, (b) the r.m.s. value, (c) the period, and (d) the frequency?

