Q1.

A transformer has 30 turns on the primary coil and 150 turns on the secondary coil.

A potential difference of 25 V is applied across the primary coil.
Calculate the potential difference across the secondary coil.
Use an equation selected from the list of equations at the end of this paper.

(3)

potential difference = ... V

(Total for question = 5 marks)

Q2.

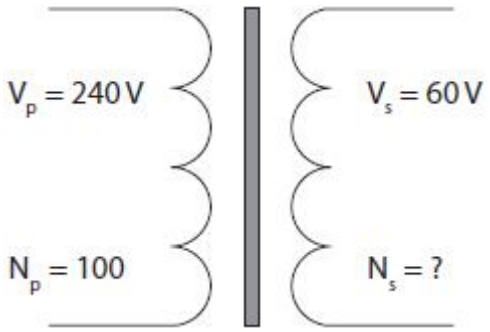


Figure 13

Figure 13 represents a transformer.
Calculate the number of turns in the secondary coil.

Use an equation selected from the list of equations at the end of this paper.

(2)

number of turns .....

(Total for question = 2 marks)

Q3.

The primary coil of a different transformer is connected to the 230 V mains supply.

The voltage across the secondary coil is 15 V.

The primary coil has 600 turns.

Calculate the number of turns on the secondary coil.

Use an equation selected from the list of equations at the end of the paper.

(2)

number of turns = ...

(Total for question = 2 marks)

Q4.

Figure 18 shows a transformer.

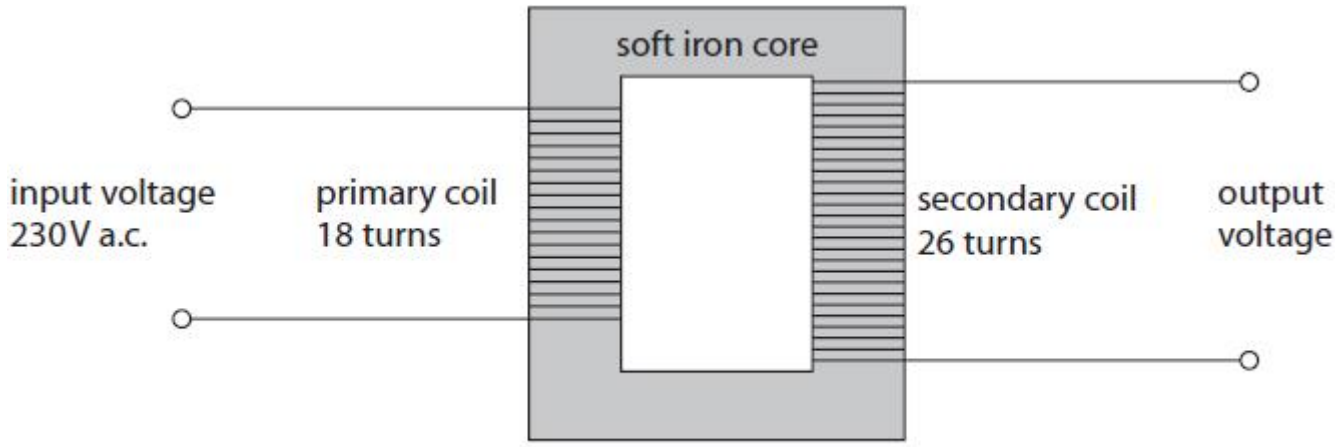


Figure 18

(i) State the purpose of the transformer shown in Figure 18.

(1)

.....

(ii) Calculate the output voltage of the secondary coil.

Use an equation selected from the list of equations at the end of this paper.

(3)

output voltage = ... V

(Total for question = 4 marks)

Q5.

Figure 25 shows a transformer.

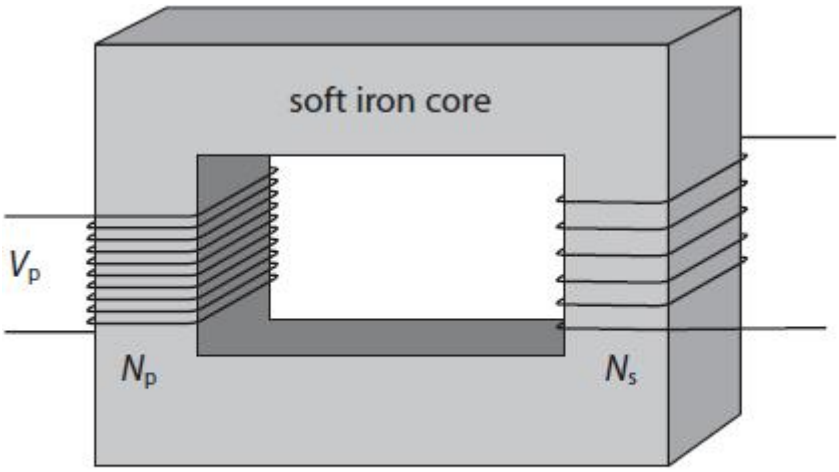


Figure 25

The number of turns on the primary coil, $N_p = 800$

The potential difference across the primary coil, $V_p = 230$ V

The number of turns on the secondary coil, $N_s = 18$

Calculate the potential difference across the secondary coil.

Use an equation selected from the list of equations at the end of the paper.

(3)

potential difference across the secondary coil = ... *V*

(Total for question = 3 marks)

Q6.

Figure 11 shows part of the UK National Grid system for the supply of electricity to homes.

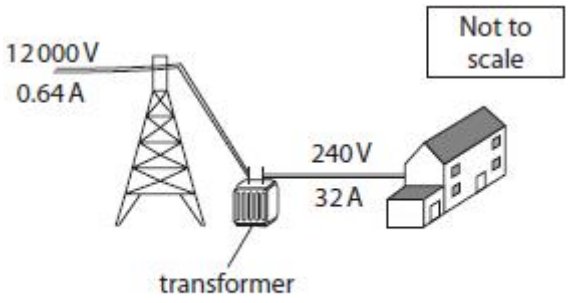


Figure 11

Figure 12 shows details of a transformer.

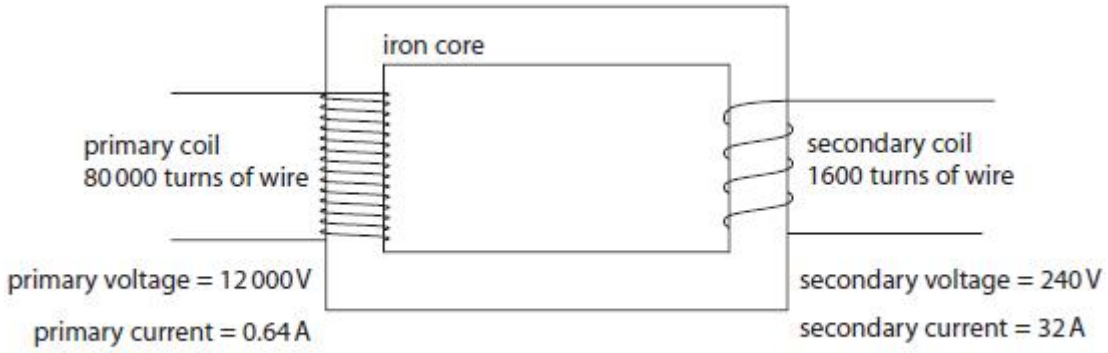


Figure 12

(ii) Calculate the following for the transformer in Figure 12.

$$\frac{\text{number of turns in secondary coil}}{\text{number of turns in primary coil}}$$

(2)

.....

(iii) For the transformer in Figure 12, evaluate, in its simplest form, the ratio

secondary voltage : primary voltage

(2)

..... : .....

(Total for question = 6 marks)

Q7.

There is a changing magnetic field in the core of a transformer.

(ii) A potential difference of 230 V is applied across the primary coil of a transformer.

There is a potential difference of 15 V across the secondary coil.
The primary coil has 2000 turns.
Calculate the number of turns in the secondary coil.
Use an equation selected from the list of equations at the end of this paper.

(3)

..... turns

(Total for question = 5 marks)

Q8.

The photograph shows a step-down transformer.



(c) A transformer has 2400 turns on the primary coil and 100 turns on the secondary coil.
Calculate the secondary voltage if the primary voltage is 12 V.

(3)

secondary voltage =..... V

(Total for Question = 3 marks)