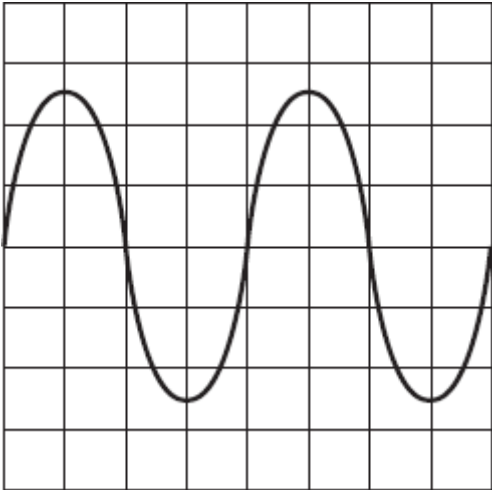


**Oscilloscope Old Exam Questions**

**Q1.** An oscilloscope is connected to an alternating current (a.c.) supply. The diagram shows the trace produced on the oscilloscope screen.



Each horizontal division on the oscilloscope screen represents 0.002 s.

(a) Calculate the frequency of the alternating current supply.

Show clearly how you work out your answer and give the unit.

.....  
.....  
.....

Frequency = .....

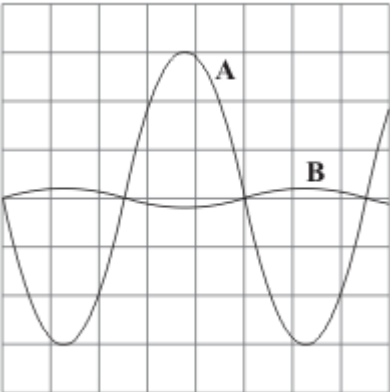
**(3)**

(b) What is the frequency of the a.c. mains electricity supply in the UK?

.....

**(1)**  
**(Total 4 marks)**

**Q2.** The diagram shows two oscilloscope traces, **A** and **B**.



Trace **A** shows how the potential difference between the live and neutral terminals of an electricity supply changes with time.

(a) Describe how the potential of the live terminal varies with respect to the neutral terminal of the electricity supply.

.....  
.....

(2)

(b) What does trace **B** show?

.....  
.....

(1)

(c) Each horizontal division on the oscilloscope represents 0.005 s.

(i) What is the period of this electricity supply?

.....

Period = ..... seconds

(1)

(ii) Calculate the frequency of the supply.

.....

Frequency = ..... hertz

(1)

(Total 4 marks)

**M1.** (a) 125  
*allow 1 mark for obtaining time period = 0.008 (s)*  
**or**  
*frequency = 1 / time period (or their calculated time period)* 2

hertz  
**or**  
 Hz  
*do not accept hz* 1

(b) 50 (hertz) 1 **[4]**

**M2.** (a) alternates  
*accept switches*  
*accept (constantly) changes*  
*accept goes up and down* 1

between positive and negative 1

(b) potential difference between the neutral and earth (terminal)  
*accept voltage for p.d*  
**or** potential of the neutral terminal with respect to earth 1

(c) (i) 0.025 (s) 1

(ii) 40 (Hz)  
*accept 1 ÷ their (a)(i)* 1 **[5]**