

# 4.2 Travelling Waves

## Question Paper

Course	DPIB Physics
Section	4. Waves
Topic	4.2 Travelling Waves
Difficulty	Easy

**Time allowed:** 20  
**Score:** /10  
**Percentage:** /100

### Question 1

Which statement does not describe the property of travelling waves?

- A. Energy and matter are transferred by travelling waves
- B. The direction of motion of a travelling wave is the direction of energy transfer
- C. Travelling waves travel away from the source of oscillation
- D. The oscillations can propagate through a medium or in a vacuum depending on the type of travelling wave

[1 mark]

### Question 2

The speed of a wave  $c$  depends on its frequency  $f$  and wavelength  $\lambda$  and is given by the equation:

$$c = f\lambda$$

Identify the correct units for the quantities given in the wave equation.

	Wave speed $c$	Frequency $f$	Wavelength $\lambda$
A.	$\text{m s}^{-2}$	J	m
B.	$\text{m s}^{-1}$	Hz	$\text{m}^2$
C.	ms	$\text{Hz s}^{-1}$	ml
D.	$\text{m s}^{-1}$	Hz	m

[1 mark]

### Question 3

A sound wave has a frequency  $f$  of 50 Hz.

Identify the correct expression showing the time period  $T$  of the wave.

- A.  $50T$
- B.  $\frac{T}{50}$
- C.  $\frac{1}{50}$
- D.  $2 \times 50$

[1 mark]

#### Question 4

Identify the example that is not a transverse wave.

- A. Sound wave
- B. Microwave
- C. Water wave
- D. Sunlight

[1 mark]

#### Question 5

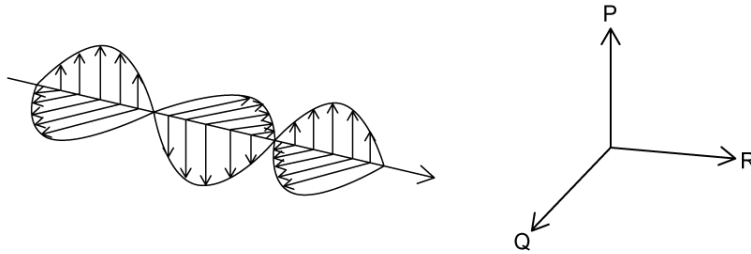
Which of the following gives regions of the electromagnetic spectrum in order of increasing frequency?

- A. Gamma ray, visible, radio wave
- B. X-ray, microwave, ultraviolet
- C. Radio wave, infrared, microwave
- D. Infrared, ultraviolet, x-ray

[1 mark]

### Question 6

An electromagnetic wave is generated by a combined oscillation of electric and magnetic fields. These fields oscillate perpendicular to each other and to the direction of the motion of the wave. The diagram shows the oscillations of an electromagnetic wave. The electric field oscillates in plane P.



In relation to the diagram, identify the correct labels for Q and R.

	Q	R
A.	Motion	Magnetic field
B.	Electric field	Motion
C.	Magnetic field	Electric field
D.	Magnetic field	Motion

[1 mark]

### Question 7

Which of the following has a frequency lower than that of visible light?

- A. Ultraviolet
- B. Infrared
- C. Gamma ray
- D. X-ray

[1 mark]

### Question 8

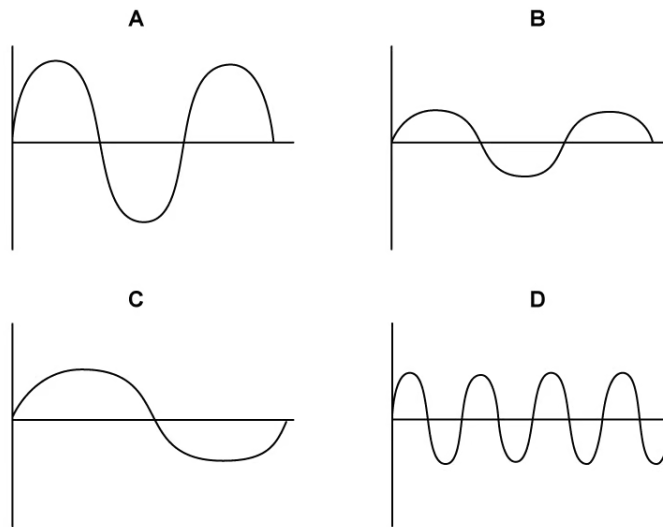
Which frequency of sound wave would a human be able to hear?

- A. 2 Hz
- B. 200 Hz
- C. 200 kHz
- D. 2000 kHz

[1 mark]

### Question 9

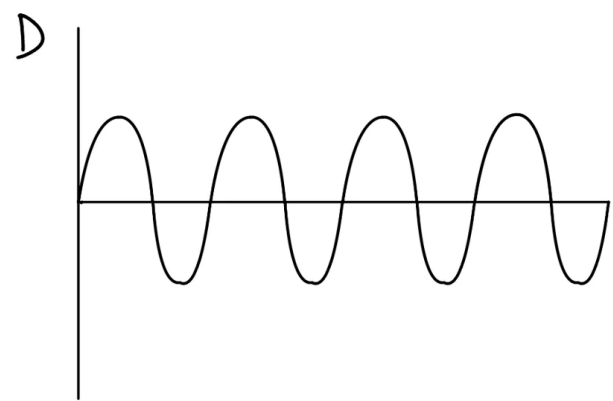
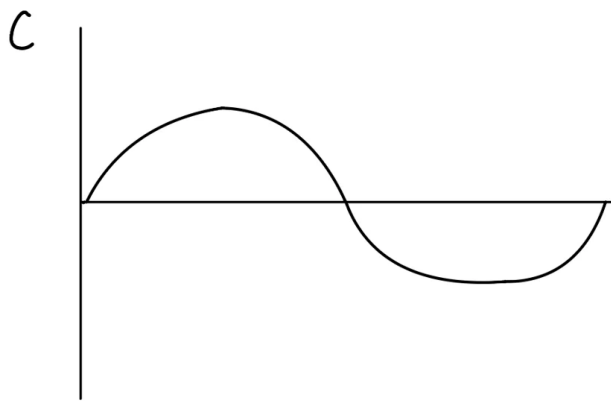
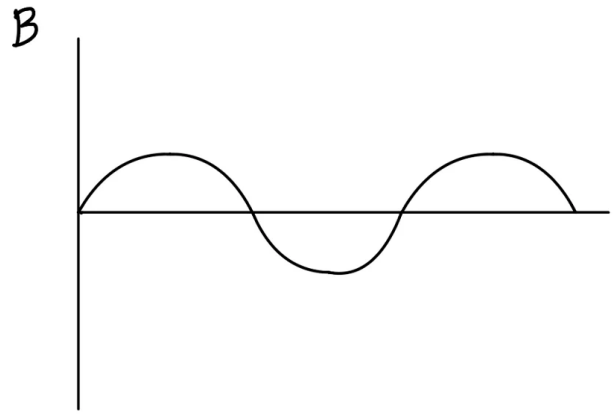
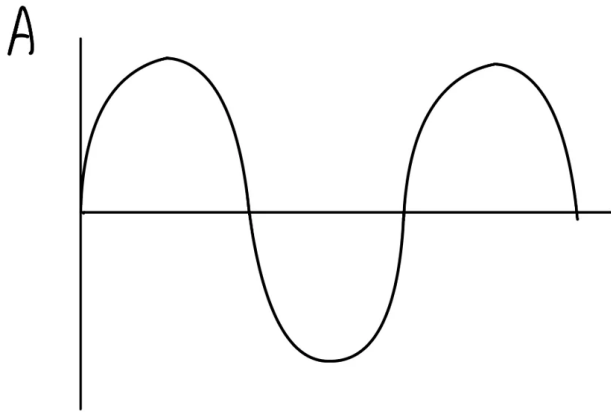
Which of the following sound waves would give the highest volume?



[1 mark]

**Question 10**

Which of the following sound waves would produce the highest pitch?



[1 mark]