

Name of the Student: _____

Max. Marks : 20 Marks

Time : 20 Minutes

Q1.

- (a) The table gives information about the frequencies in the hearing ranges of six different mammals.

Name of mammal	Frequencies in hearing range
Bat	20 Hz → 160 kHz
Dog	20 Hz → 30 kHz
Dolphin	40 Hz → 110 kHz
Elephant	5 Hz → 10 kHz
Human	20 Hz → 20 kHz
Tiger	30 Hz → 50 kHz

- (i) Which mammal in the table can hear the highest frequency?

(1)

- (ii) Which mammal in the table, apart from humans, **cannot** hear ultrasound?

(1)

- (iii) Give **one** example of a frequency which an elephant can hear but which a tiger **cannot** hear.

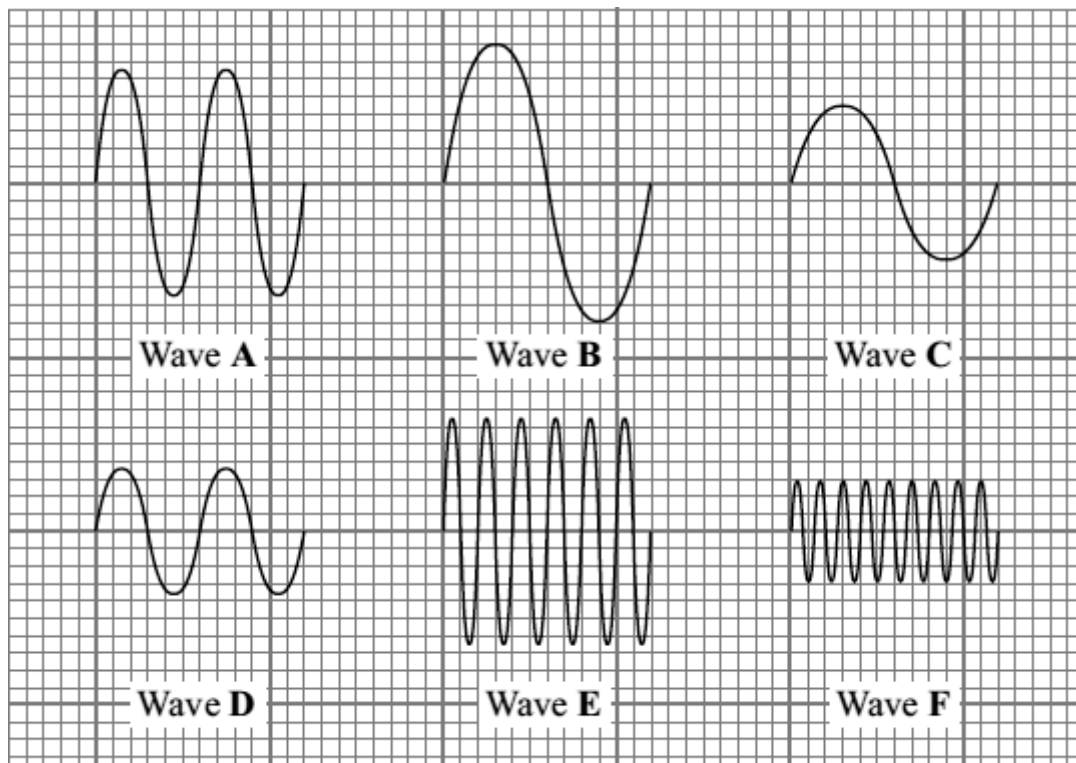
Include the unit in your answer.

Frequency _____

(1)

- (b) The diagrams show six sound waves, **A, B, C, D, E** and **F**, represented on an oscilloscope screen.

They are all drawn to the same scale.



(i) Which **one** of the waves has the greatest amplitude?

Wave _____ (1)

(ii) Which **one** of the waves has the highest frequency?

Wave _____ (1)

(Total 5 marks)

Q2.

The diagram shows the seven types of wave that make up the electromagnetic spectrum.

Gamma rays	X-rays	Ultraviolet rays	Visible light	Infra red rays	Micro-waves	Radio waves
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(a) (i) Microwaves and visible light can be used for communications.

Name **one** more type of electromagnetic wave that can be used for communications.

_____ (1)

(ii) Name **one** type of electromagnetic wave that has a longer wavelength than microwaves.

_____ (1)

(b) Wi-Fi is a system that joins a laptop computer to the internet without using wires. A 2400 megahertz microwave signal is used to link a computer to a device called a router.

to see objects

to kill cancer cells

(1)

(iii) Complete the following sentence by drawing a ring around the correct word in the box.

All electromagnetic waves move

energy

gases

particles

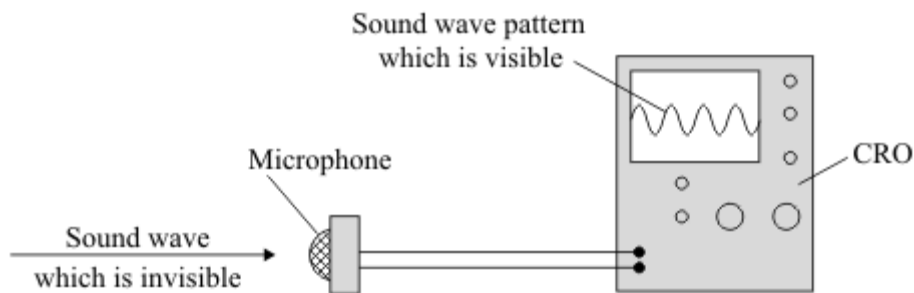
from one place to another.

(1)

(Total 4 marks)

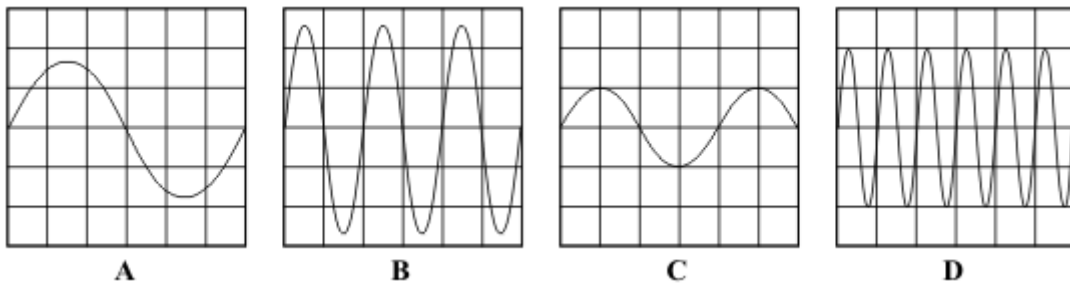
Q4.

A microphone and a cathode ray oscilloscope (CRO) can be used to show the pattern of a sound wave.



Four sound wave patterns, **A**, **B**, **C** and **D**, are shown.

They are all drawn to the same scale.



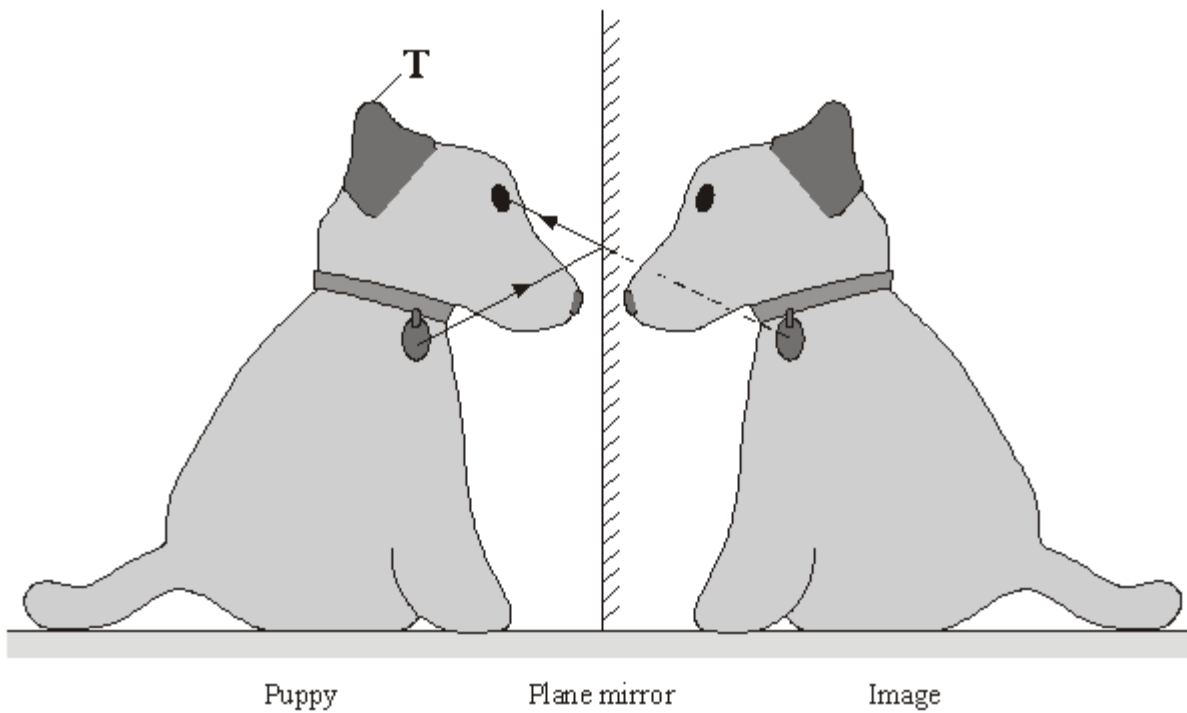
(a) Which **one** of the patterns has the smallest amplitude? _____

(b) Which **one** of the patterns has the lowest frequency? _____

(Total 2 marks)

Q5.

A puppy can see an image of himself in a plane mirror.



The diagram shows how the puppy can see his disc.

- (a) On the diagram, use a ruler to draw a ray to show how the puppy can see the top of his ear, which is marked as **T**.

(3)

- (b) What is a plane mirror?

(1)

(Total 4 marks)