Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic : Waves

Merit Minds
www.merit-minds.com
Exam Preparation and Free Resources

Name of the Student:_____
Max. Marks : 20 Marks **Time : 20 Minutes**

Q1.

Answer the question with a cross in the box you think is correct ☒ . If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒ .

This question is about ultrasound.

Which of these is a frequency of ultrasound?

(1)

☐ **A** 2.3 Hz

☐ **B** 23 Hz

☐ **C** 2.3 kHz

☐ **D** 23 kHz

(Total for question = 1 mark)

Downloaded from www.merit-minds.com

Q2.

Answer the question with a cross in the box you think is correct ☒ . If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒ .

Figure 5 shows lightning from a thunderstorm over the sea.

(Source: ©National Geographic)

Figure 5

(i) Which row of the table is correct for the light and sound waves?

(1)

		Light waves	Sound waves
☐	**A**	longitudinal	longitudinal
☐	**B**	longitudinal	transverse
☐	**C**	transverse	longitudinal
☐	**D**	transverse	transverse

(ii) A person on a beach hears the sound of thunder 6.0 s after seeing the lightning.

The speed of the sound wave is 330 m/s and the speed of light in air is 3.0×10^8 m/s.
Estimate the distance between the lightning and the person.

(2)

distance = ... m

(Total for question = 3 marks)

Downloaded from www.merit-minds.com

Q3.

Answer the question with a cross in the box you think is correct (☒). If you change your mind about an answer, put a line through the box (☒) and then mark your new answer with a cross (☒).

Which row of the table shows two transverse waves?

(1)

☐ **A**	infrasound	infrared
☐ **B**	infrared	ultraviolet
☐ **C**	ultrasound	infrasound
☐ **D**	ultraviolet	ultrasound

(Total for question = 1 mark)

Downloaded from www.merit-minds.com

Q4.

Answer the question with a cross in the box you think is correct (☒). If you change your mind about an answer, put a line through the box (☒) and then mark your new answer with a cross (☒).

Which row of the table shows two transverse waves?

(1)

☐ **A**	infrasound	infrared
☐ **B**	infrared	ultraviolet
☐ **C**	ultrasound	infrasound
☐ **D**	ultraviolet	ultrasound

(Total for question = 1 mark)

Downloaded from www.merit-minds.com

Q5.

Figure 11 shows a dolphin.

Figure 11

Dolphins emit sounds under water.
Scientists at four different research centres investigate the sounds made by dolphins.
Each centre chooses one of their dolphins and analyses the frequencies of the sounds the dolphin makes.

Figure 12 shows the range of frequencies from four different dolphins, W, X, Y and Z.

dolphins	lowest frequency (Hz)	highest frequency (kHz)
W	200	92
X	100	120
Y	85	105
Z	90	130

Figure 12

(i) Which of the following statements is a correct deduction from this information?

(1)

- ☒ **A** all four dolphins emit infrasound and ultrasound
- ☒ **B** all four dolphins emit ultrasound
- ☒ **C** only some of the four dolphins emit infrasound and ultrasound
- ☒ **D** only some of the four dolphins emit ultrasound

(ii) The frequency range of the sounds from dolphin W is 91.8 kHz.

Calculate the frequency range of the sounds from dolphin X.

(2)

range = ... kHz

(Total for question = 3 marks)

Downloaded from www.merit-minds.com

Q6.

Complete the sentence by putting a cross (☒) in the box next to your answer.

A bee's wings flap up and down with a frequency of 230 Hz.

This is a frequency of

(1)

- ☒ **A** infrasound
- ☒ **B** sonar
- ☒ **C** sound
- ☒ **D** ultrasound

Downloaded from www.merit-minds.com

Q7.

Many earthquakes and volcanoes are linked to the production of infrasound waves.
Describe what is meant by **infrasound waves.**

(2)

.....

.....

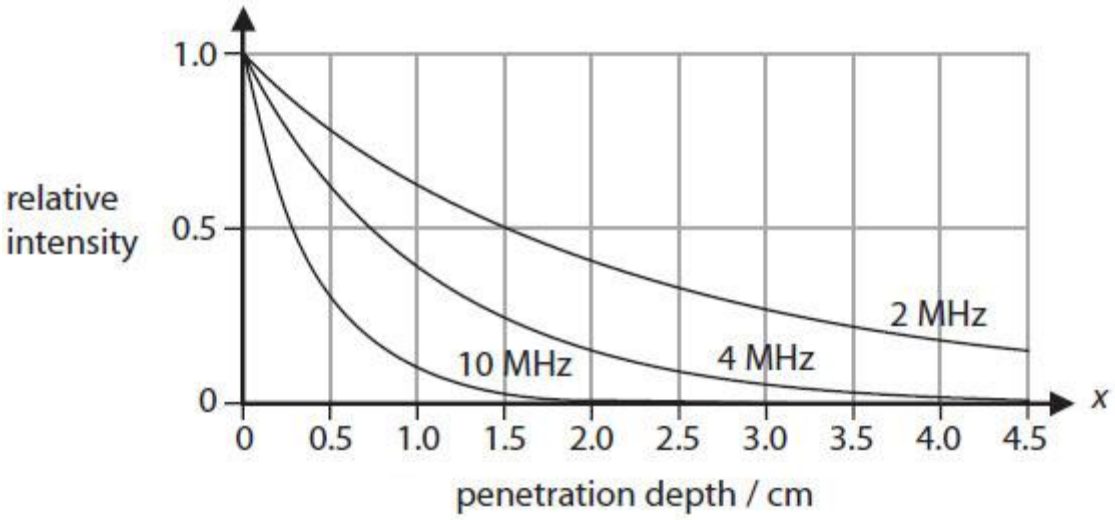
.....

.....

Downloaded from www.merit-minds.com

Q8.

The graph shows how the intensity of ultrasound waves of different frequencies decreases as they penetrate soft tissue.



(i) Estimate how far a 2 MHz wave has penetrated into the soft tissue when its intensity is 25% of its original value.

(1)

.....

(ii) Explain which of these frequencies of ultrasound can be used to scan organs deep inside the body.

(2)

.....

.....

.....

.....

Downloaded from www.merit-minds.com

Q9.

Light waves and sound waves are both used in the diagnosis and treatment of medical conditions

(i) A doctor uses an endoscope to look inside the body of a patient.

Explain how optical fibres are used in endoscopes.

You may draw a labelled diagram to help with your answer.

(3)

.....

.....

.....

.....

.....

.....

.....

(ii) Describe how ultrasound can be used as a medical treatment for illness or injury.

(2)

.....

.....

.....

.....

Downloaded from www.merit-minds.com