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

Q1.

(a) Sound travels through air, water and glass at different speeds. Through which of these materials does sound travel:

the fastest; _____

the slowest? _____

(2)

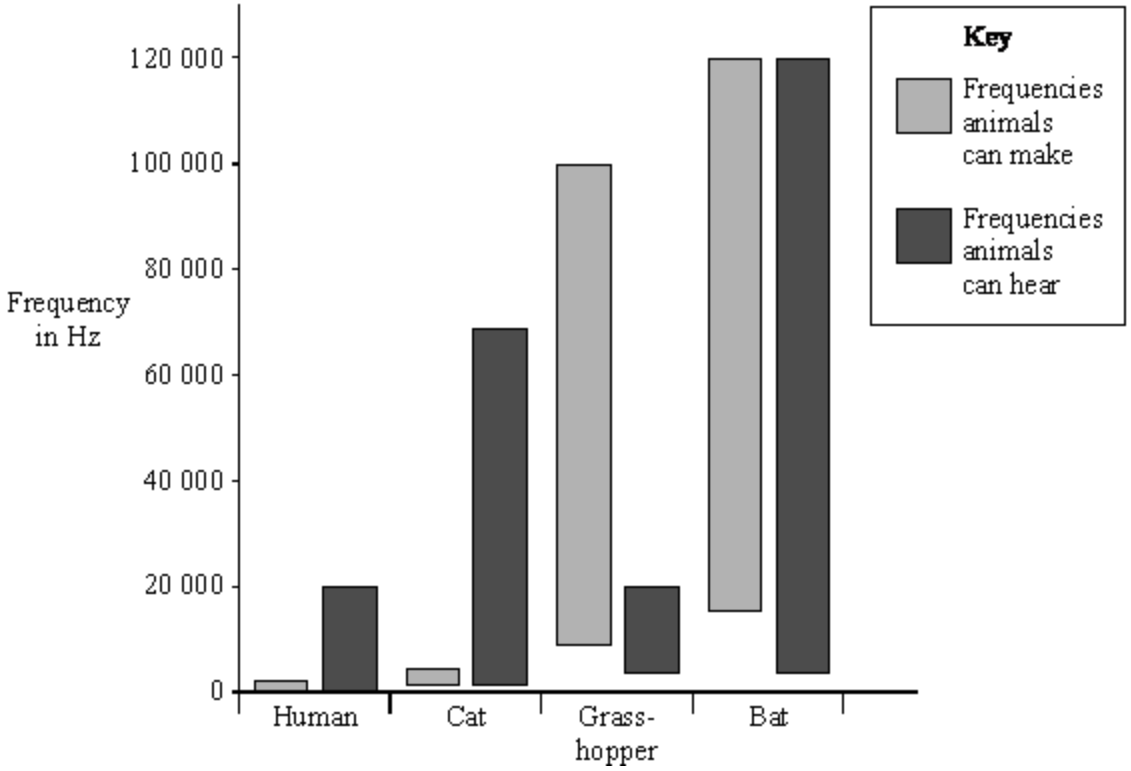
Give a reason for your choice of answers.

_____

_____

(1)

(b) The bar chart shows the frequencies of sound which different animals can make and can hear.



(i) Which of the animals can make sounds which are beyond their own hearing range?

_____

(1)

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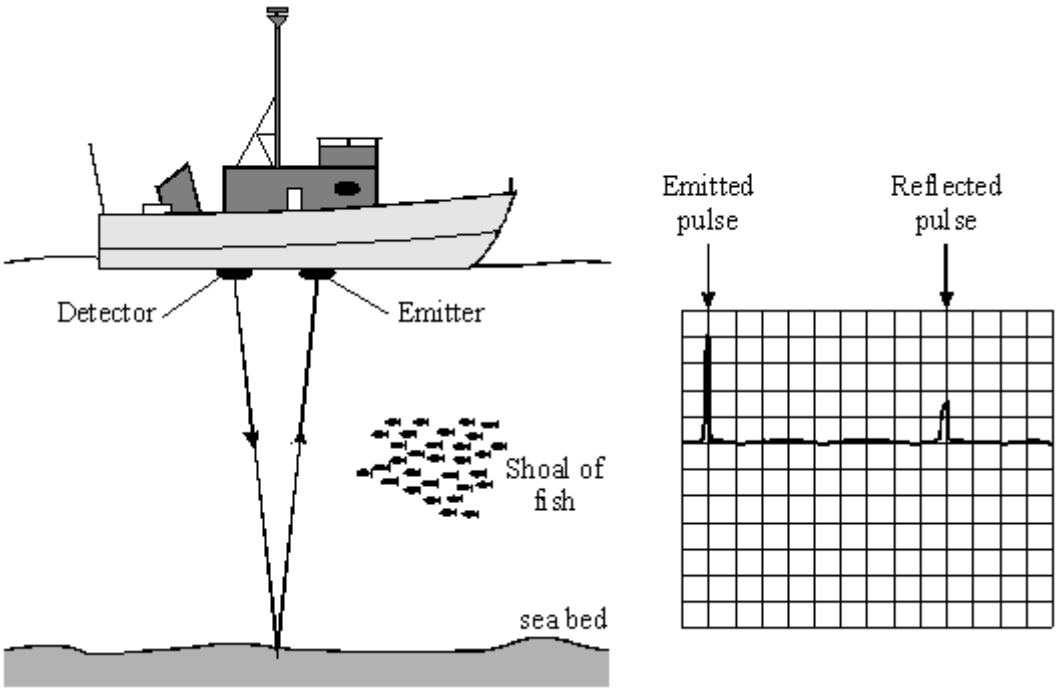
(ii) What name is given to the sounds which a cat can hear but a human cannot?

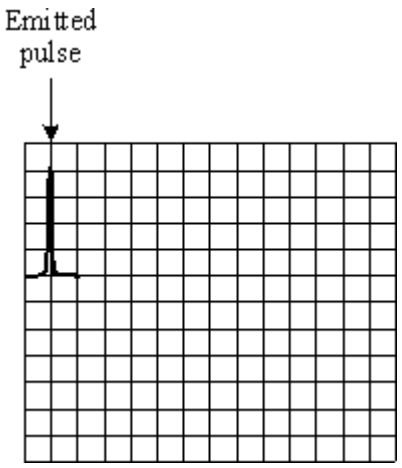
_____

(1)

(c) The diagram shows a trawler searching for a shoal of fish. Pulses of high frequency sound emitted from the trawler are reflected back to the trawler. The pulses are displayed on a cathode ray oscilloscope.



Complete the diagram below to show the pattern seen on the cathode ray oscilloscope as the trawler passes over the shoal of fish.



(2)

(Total 7 marks)

Q2.

(a) The diagrams below show rays of light striking a mirror and a perspex block.

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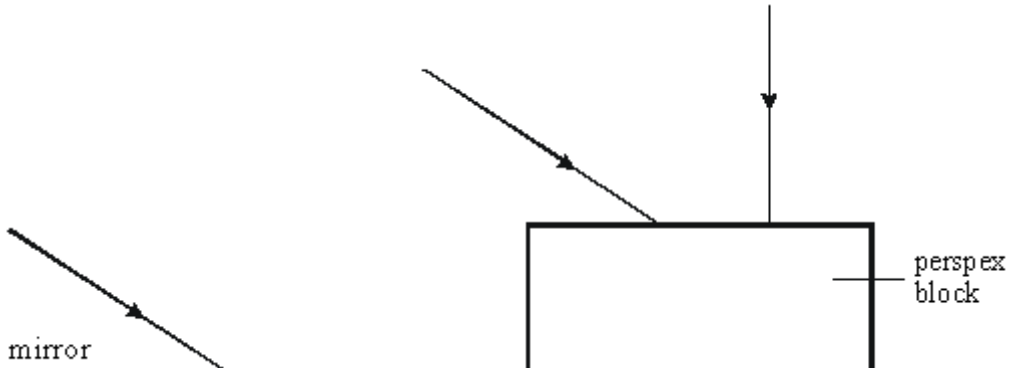
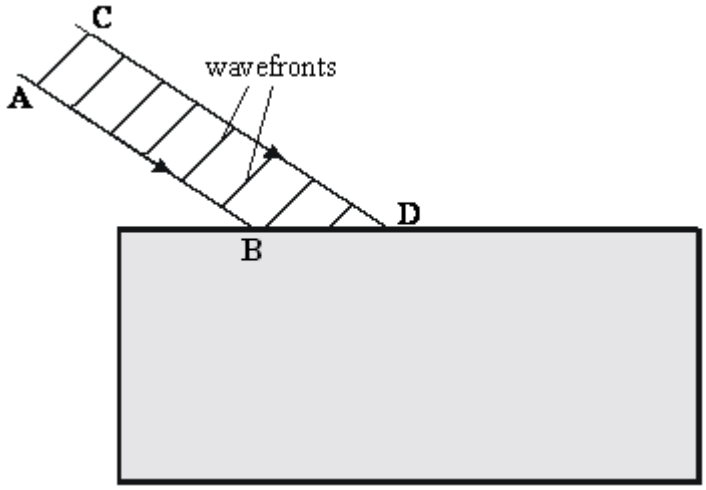


Complete the paths of the three rays of light on the diagrams to show the rays leaving the mirror and the perspex block.

(4)

(b) The diagram below shows a beam of light striking a perspex block.



(i) Continue the paths of the rays AB and CD inside the perspex block.

(ii) Draw the wavefronts of the beam of light in the perspex.

(iii) Explain why the beam behaves in the way you have shown.

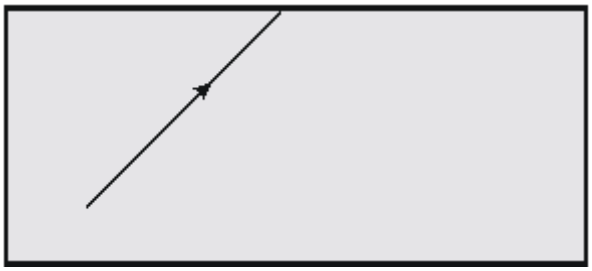
_____

_____

_____

(7)

(c) The diagram below shows a ray of light striking a perspex-air surface from inside the perspex. The critical angle is 45º.



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Draw the path of the ray after it reaches the perspex-air boundary.

(2)

(Total 13 marks)

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