

A Level Physics A

H556/02 Exploring physics

Question Set 31

1 (a) Explain how an ultrasound transducer can **emit** ultrasound.

You do **not** need to describe the design of the transducer.

[2]

An alternating p.d. is applied across a piezoelectric crystal, at the resonate frequency of the crystal, causing it to resonate and produce high frequency sound waves.

(b) Explain how the reflection of ultrasound at a boundary between two tissues depends on the physical properties of the tissues.

[3]

- The fraction of ultrasound reflected at a material boundary is acoustic impedance Z .
- $Z = \rho c$ where ρ is the density of the material
- clearest signals will be where there is a large change in density between the tissues.

Total Marks for Question Set 31: 5

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