

**Q1.(a)** During a magnetic resonance (MR) brain scan, the head of the patient is exposed to short pulses of radio frequency electromagnetic waves while in a strong magnetic field. Outline the basic principles of an MR scanner used to perform this scan.

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**(3)**

(b) Ultrasound is thought to be more suitable than X-rays for scanning an unborn fetus. State **two** reasons why ultrasound is used for this application.

reason 1.....  
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reason 2.....  
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**(2)**

**(Total 5 marks)**

**Q2.** (a) Outline the basic principles of a magnetic resonance (MR) scanner used to scan a patient's brain.

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(3)

- (b) State and explain **two** advantages of using an **MR** scanner to scan a patient's brain compared with a CT scanner.

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(4)

(Total 7 marks)