A Level · OCR · Physics

4 mins 4 questions

Multiple Choice Questions

EM Waves

The Electromagnetic Spectrum / Polarisation

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Total Marks /4

1 A star exploded in the milky way galaxy emitting electromagnetic radiation. X-rays and microwave radiation from this burst were detected simultaneously at the Earth.

The wavelength of the X-rays was 2.5×10^{-9} cm.

What is the frequency of the X-rays?

A. 1.2×10^{19} Hz

B. 1.2×10^{17} Hz

C. 1.2×10^{15} Hz

D. 1.2×10^{13} Hz

(1 mark)

2 Which of the following waves can be polarised and has a typical wavelength of about 2×10^{-7} m?

A. Ultraviolet Radiation

B. Sound Waves

C. X-Rays

D. Radio Waves

(1 mark)

3 Which statement(s) are **correct** about an electromagnetic wave?

1. It can be diffracted and polarised
2. Its oscillations are parallel to the energy transfer
3. It can travel through a vacuum
4. It has a speed of less than 3.00×10^{8} m s^{-1} when travelling through denser medium

A. 1,3 and 4

B. Only 1 and 4

C. Only 2 and 3

D. Only 1

(1 mark)

4 What statement can be deduced from a table presenting frequencies in the electromagnetic spectrum?

A. The frequency of radio waves is greater than the infrared waves

B. The frequency of X-rays is greater than that of radio waves

C. The frequency of X-rays and gamma rays are equa

D. The frequency of gamma rays is less than X-rays

(1 mark)