

Properties of Cathode Rays

<https://gemini.google.com/app/b1b5e48d8a47e82b>

Response: The incorrect statement is **(1) Green in colour**.

Analysis of Statements

- **(1) Green in colour (Incorrect):** Cathode rays themselves are streams of invisible electrons. The greenish glow associated with discharge tubes is caused by fluorescence when electrons strike the glass walls or a zinc sulfide screen, not an inherent color of the rays.
 - **(2) Has a constant e/m ratio (Correct):** Since cathode rays consist purely of electrons, their charge-to-mass ratio (e/m) is a universal constant regardless of the gas used or cathode material.
 - **(3) Used in CRT television and computer monitors (Correct):** Cathode Ray Tubes (CRTs) utilize controlled electron beams to display images.
 - **(4) Deflect in a magnetic field (Correct):** Being negatively charged particles, cathode rays experience a Lorentz force when passing through a magnetic field.
 - **(5) Has a momentum (Correct):** Because electrons have mass (m) and move with velocity (v), cathode rays possess kinetic energy and linear momentum ($p = mv$).
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