

Easy

Assistant Engineer (Electrical), Class 2025

Building Department

A substance whose relative permeability is less than the permeability of free space is _____.

A

Diamagnetic

Correct

B

Paramagnetic

C

Ferromagnetic

D

Not a magnetic substance

Correct Answer: A

Full Detailed Explanation

Concept & Reasoning The wording compares material permeability with free-space permeability. Since $\mu_r = \mu / \mu_0$, a material with $\mu_r < 1$ has $\mu < \mu_0$ and is diamagnetic. Paramagnetic substances have μ_r slightly greater than 1, while ferromagnetic materials can have μ_r many times larger than 1. Diamagnetism is weak and generally associated with negative magnetic susceptibility. **How to Solve It in the Exam** below μ_r below 1 diamagnetic. **Important Exam Point** Translate permeability wording into relative permeability before selecting the material class. **Related Revision Path** This question sits in the revision path Electromagnetic Fields → Magnetic Materials → Magnetic Properties .

Open live question on website:

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