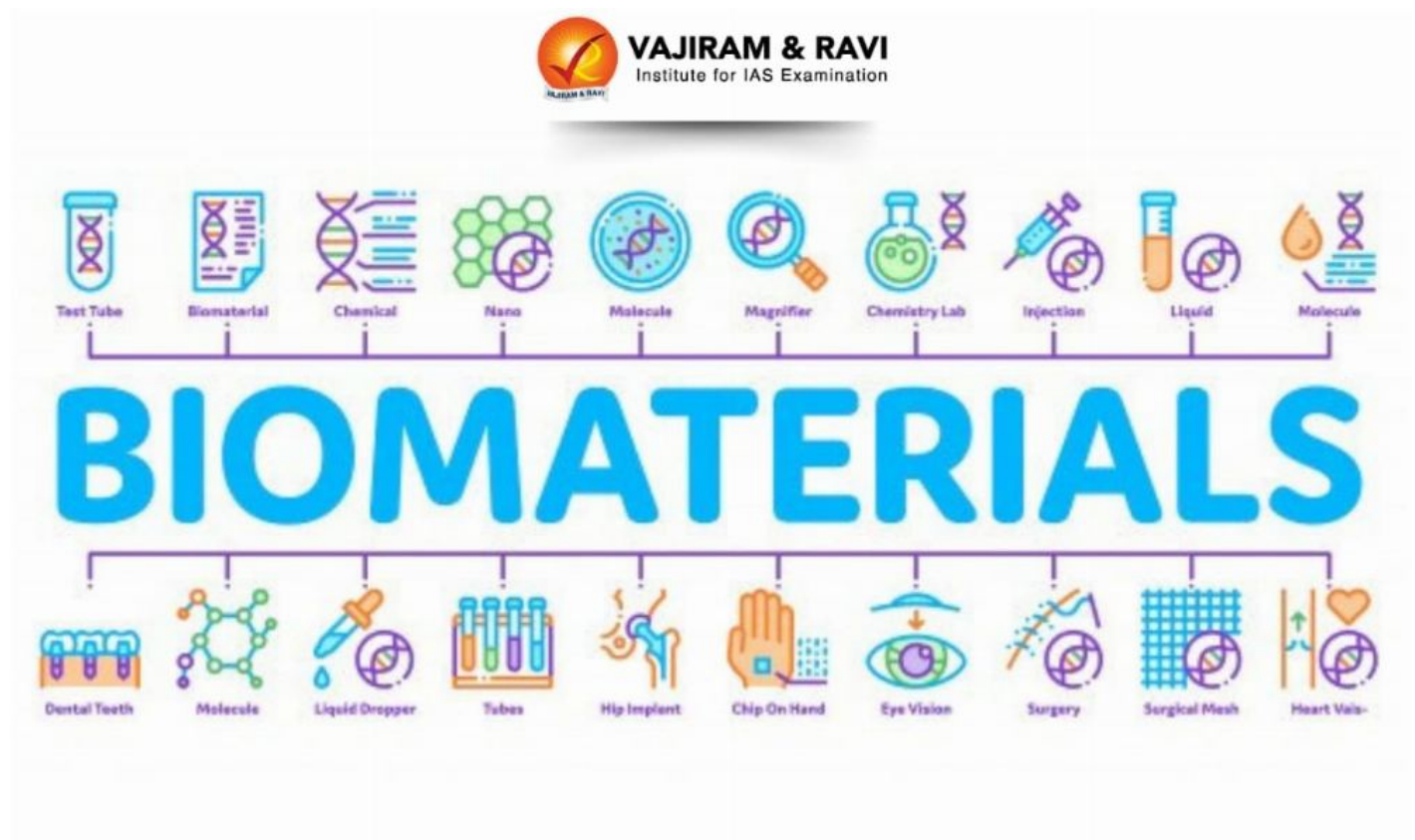


Biomaterials

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Biomaterials Latest News

As countries look to shift to cleaner processes to manufacture consumer products, be it plastics or textiles, biomaterials will become the new frontier of materials engineering.

About Biomaterials

- They are materials of **natural, synthetic, or hybrid origin** designed to **interact safely and compatibly with** different systems such as the **human body and the environment**.
- They are **derived wholly or partly from biological sources or engineered using biological processes** that are designed to **replace or interact** with **conventional materials**.
- They are increasingly used across sectors such as **packaging, textiles, construction, and healthcare**.
- Biomaterials are **central to modern biomedicine and bioengineering**, and their design is informed by application-specific demands and trade-offs.
- The modern field of biomaterials **combines physics, chemistry, medicine, and biology**, as well as **materials science and tissue engineering**.

- **Metals, plastics, ceramics, glass, cells, and living tissue** are currently **used to create biomaterials**.
- Biomaterials can be broadly categorised into **three types**:
 - **Drop-in biomaterials**, which are **chemically identical to petroleum-based materials** and can be **used in existing manufacturing systems** (such as bio-PET);
 - **Drop-out biomaterials**, which are **chemically different** and require **new processing or end-of-life systems** (such as **polylactic acid** or PLA);
 - **Novel biomaterials**, which offer **new properties** not found in conventional materials, such as **self-healing materials, bioactive implants, and advanced composites**.

Source: TH

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