



DEPARTMENT OF CHEMISTRY

PART - A

1. What are types of nanomaterials?

Nanoparticles

Nanoclusters

Nanorods

Nanotubes

2. List out the uses of carbon nanotubes.

It is used in battery technology and in industries as catalyst.

It is also used as light weight shielding materials for protecting electronic equipments.

CNTs are used effectively inside the body for drug delivery.

It is used in composites, ICs.

3. List out the properties of carbon nanotubes.

CNTs are very strong; withstand extreme strain in tension and possess elastic flexibility.

The atoms in a nano-tube are continuously vibrating back and forth.

It is highly conducting and behaves like metallic or semiconducting materials.

It has very high thermal conductivity and kinetic properties.

4. Write the uses of sol gel method.

The sol-gel process referred to sometimes as the chemical solution deposition process is a wet chemical method used for the synthesis of doped inorganic-organic nanoparticles (NP), functional materials such as supercapacitors, nonlinear optical materials, ferroelectrics, photocatalyst, and catalytic membranes.

5. List out composition of CNG

Composition

Constituents	Percentage (%)
Methane	88.5
Ethane	5.5
Propane	3.7
Butane	1.8
Pentane	0.5

6. Write a note on Biodiesel.

Biodiesel is a renewable, biodegradable fuel manufactured domestically from vegetable oils, animal fats, or recycled restaurant grease

7. Define calorific value.

The calorific value of the fuel is defined as “the total amount of heat liberated, when a unit mass of fuel is burnt completely.”

8. List out composition of LPG.

The primary components of liquefied petroleum gas (LPG) are propane, butane, propylene, butylene, and isobutane.

9. Write a note on Biogas.

Biogas a renewable fuel that's produced when organic matter, such as food or animal waste, is broken down by microorganisms in the absence of oxygen.

10. Define Gross calorific value.

Gross (or) Higher Calorific value (GCV): The total heat generated when unit quantity of fuel is completely burnt and the products of combustion are cooled to room temperature.

11. Define LCV of a fuel.

Net (or) Lower Calorific value (LCV): The net heat produced when a unit quantity of fuel is completely burnt and the products of combustion are allowed to escape.

12.Laser Ablation

- In laser ablation, high-power laser pulse is used to evaporate the matter from the target.
- The stoichiometry of the material is preserved in the interaction.
- The total mass ablated from the target per laser pulse is referred to as the ablation rate.