



Science

Grade 9





Grade 9 – Unit 16 Science

Nanotechnology and its Applications

- The nanometer in meters.
 - 10^{-3}m
 - 10^{-6}m
 - 10^{-9}m
 - 10^{-12}m
- Nanotechnology investigates the particles of
 - 1-10 nm
 - 1-100 nm
 - 1-1000 nm
 - 1-50 nm
- Select the correct statement about graphene used in Nanotechnology.
 - It is multi-layered graphite.
 - It is an artificial substance.
 - A single layer of graphite plate.
 - A molecule made of carbon atoms arranged in a shape of a football.
- Sri Lanka Institute of Nanotechnology is situated in
 - Homagama
 - Bauddhaloka Mawatha
 - Padukka
 - Norochchole
- Who introduced Nanotechnology to the world?
 - Eric Drexler
 - Albert Einstein
 - Richard Feynman
 - Andre Geim
- Which element is commonly used in Nanotechnology?
 - Oxygen
 - Hydrogen
 - Carbon
 - Graphite
- The main reason for the unique properties of Nano scale particles is
 - The higher value of surface to volume ratio of nano scale particles.
 - The higher energy of Nano particles.
 - That they are resistance free.
 - Particle size of 1-100 nm.
- Carbon is widely used in Nanotechnology because
 - It shows no electrical properties.
 - It is denser.
 - It is highly flexible.
 - It demonstrates low mechanical properties.
- Raw materials used to produce activated carbon is
 - Diamond, graphite, peat
 - Coconut shell charcoal, wood charcoal, coal
 - Peat , graphite, wood charcoal
 - Diamond, peat ,coconut shell charcoal
- Activated carbon is used to clean water because,
 - It has a greater surface area.
 - The pores in the surface have a high adsorption capacity.
 - The surface area of one gram of activated carbon is approximately 100m^2 .
 - There is no suitable material other than activated carbon.



1) What is Lotus effect?

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2) Name three types of microscopes used in Nanotechnology.

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3) Name five fields that use Nanotechnology.

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4) Write three examples for applications of Nanotechnology in each of the fields that you have mentioned in 3).

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5) Write two applications of Nanotechnology in the field of medicine.

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02.

1) What are the adverse effects of Nanotechnology?

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2) What are the actions to be taken to minimize those effects?

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03. Tick (√) the true statements and cross(X) on the false statements.

- i. The hydro phobic condition on lotus leaves are known as Lotus effect. ()
- ii. The strength of carbon Nano materials is several times lower than that of steel. ()
- iii. Fullerene is a molecule which consists of about 60 carbon atoms arranged in a shape of a football . ()
- iv. A large particle has a larger surface area than solid Nano scale particles of equal mass. ()
- v. It is not possible to produce chemical or biological weapons on Nano scale. ()