A Comparative Study of Technological Criteria and it's Nanotechnology Benefits.

# DR.D.VIJAYA KUMAR

Principal, Kits, Kodad Telangana.

### ABSTRACT

Nanotechnology is the study of the Nano Scale, with items as small as a Nanometer in size. Our ability to build big, sophisticated structures with nanometer precision is fast changing, and it comprises of top-down reductive techniques and bottom-up additive approaches. Nanotechnology has an impact on nearly every aspect of food and agricultural systems, including food security, disease treatment delivery methods, textiles, new instruments for molecular cellular biology, new materials for pathogen detection, and environmental protection. Because of its ability to change chemical, electronic, optical, thermal, magnetic, and biological properties of matter due to its ultra small size of less than 100 nm (1NM=1 part of 10 lakh equal parts of 1mm) in the 3D structure of matter, when the dimensions are reduced to nano size one by one, the formed nano structures are called films, nano wire, and quantum dot respectively.

**KEYWORDS:** Intricate Nanometer, up additive, Nano size, magnetic, biological properties.

## INTRODUCTION

Nanotechnology will have substantial social consequences in the fields of military applications, intellectual property issues, labor, and the balance of citizens and governments. Nanotechnology entails looking at the world through the eyes of an atom or molecule while keeping aware of structure and process at a higher level. In practice, this should have a significant impact on applied science, which deals with the most important issues confronting humanity, such as food, energy, and other resource security. Nanotechnology will hopefully give humanity new impacts to formulating and solving the problems in a more rational way. According to which it is first ascertained whether the problem requires new fundamental knowledge for its solution whether it nearly requires the application of existing fundamental knowledge.

Nanotechnology begins multidimensional impacts to society that are sure to be debated for decades to come .The benefit are many , the risk real ,and the paths forward are complex nanotechnology also lowers costs produces stronger and lighter wind turbines imposed fuel efficiency and thanks to thermal insulating of same nano components. Can save energy the properties of save nanomaterials make them for improving early change diagnosis and treatment of neurodegenerative diseases or cancer . Nanotechnology is failed as having potential to increase the efficiency of energy consumption help clean the environment and solve major health problems. Its said to be able to massively increase manufacturing production at significant reduced costs. Nanotechnology provides many benefits in many areas of life , it help to improve many technological and industrial sectors to a large extended such as information technology , energy, medicine, National security ,environmental saves, food safety and many others.

Nanotechnology can change dental medicine , health care and human life profoundly then several developments of the past. The significant interest of using Nanotechnology in Agricultural includes specific applications like mono fertilizes and Nano pesticides to trail products and nutrients level to increase the productivity without decontaminates of soils , waters and protection against several insects

#### Juni Khyat (UGC Care Group I Listed Journal)

### ISSN: 2278-4632 Vol-12 Issue-12 No.02, December 2022

pest and microbial diseases. Thus are fundamental difference between biotechnology and Nanotechnology is in Nature of the materials Nanotechnology uses manmade and inorganic materials , however typically less than 100mm size. Nanotechnology is helping to considerable improve even revolutionize ,many technology industry sectors ,information technology ,home level security , medicine, transportation , energy , food safety and environmental sciences among many others.

Nanotechnology has an influence on all most all sectors of food and agricultural systems, such as food security , diseases treatment delivery methods, new tools molecular and cellular biology , new materials for pathogen detection , and protection of the environment . International advanced research centers for powder metallurgy and new materials (ARCI) developed a Nano silver based suspension that can be applied on the fabric surfaces to the get antibacterial activity Nano silver uses the same scientific principle as the one that lies in our tradition to drink water stored copper and silver ,vessels, where the ions of these metals released in water , kill microorganisms and make it safe for drinking. The applications of Nanotechnology , commonly incorporate industrial , medicinal ,and energy uses . This includes more durable construction materials therapeutic drug delivery and higher density hydrogen fluid cells that are environmentally friendly. Nanotechnology has treat potential in the textile industry functional and smart textiles .can play an important rule in the economy of the Nation. However, there limitation in application due to the scientific complexity and cost adhered to it. A proper study is necessary to find any toxic

At the sometimes engineers can use also use Nanotechnology to create a device electronics that may reduced the energy consumption and increases the efficiency of energy production for example the production of displays with low energy consumption could be accomplished by using carbon monocubes nanotechnology engineering allows people to alter materials at there basic level through a masters of electrical engineering can depend there comprehension of how effective monetized electronic components are designed , manufactured and used . Major benefits of nanotechnology includes improved manufacturing methods , water purification systems energy systems , physical enhancement , mono medicine better food production methods, nutrition and large scale infrastructure auto fabrication

## NANOTECHNOLOGY & MECHINICAL ENERGY:

Nanotechnology is the new frontier of engineering imaging new possibilities in in manufacturing, fluid mechanics, robotics, combustion of biomedicine measurements, heat transfer, and micro and monofluids, biomolecular detection nano scale thermal transportation.

## NANOTECHNOLOGY IN CIVIL ENGINEERING:

Among the many different types of mono particles titanium deoxide, carbon nanotubes, silicon, copper, clay and aluminum of oxide are the most widely used nano particles construction section. Materials science and engineering is at the heart of the Nanotechnology whether its leads to advance in electronics quantum computing bioengineering mechanical engineering are other displaces.

## **NEED OF STUDY**

Nanotechnology is a rapidly developing field, Nanotechnology can increase the efficiency energy consumption, solve major health problems, and aid in cleaning the environment it can also help Nanos industries to increase production and reduced certain costs. Nanotechnology can change dental

#### Juni Khyat (UGC Care Group I Listed Journal)

### ISSN: 2278-4632 Vol-12 Issue-12 No.02, December 2022

medicine health care, and human life profoundly then several developments of the past. The average person already encounters Nanotechnology is range of everyday consumer protects Nano particles of silver are used to deliver antimicrobial properties hand washes bandages, and shocks and zinc or titanium nanoparticles are the active UV protective elements in modern screens. Nanotechnology will have significant social impacts areas of military application intellectual property issues has well has having on effect on labor and balance between citizens governments. Nanotechnology is helping to consider only improve even revolutionize, many technology homeland security, medicines, transportations energy food safety and environmental science among many others. Nanotechnology offers the potential for new and faster kinds of computers , more efficient power sources and life saving medicinal treatments . using nanotechnology , scientist can ensure drugs and delivered to specific areas in the body with greater precision and the drug can be formulated .So that the active ingredients both better permeates cell membranes, reducing required dose.

### CONCLUSION

Nanotechnology has been widely studied for its potential advanced the field of biotechnology and medicinal research. Nanotechnology has the huge potential to transform peoples lives for the better we start using cheap lightweight solar plastics which makes solar energy widely available. Nanoparticles can clean up toxic chemical spills as well as air borne pollutants scientists and engineers believes Nanotechnology can be used to benefits human health now and in the future through applications and new ways of repairing damaged tissues and organs. Nanotechnology uses includes every thing from safer food processing to more efficient drug delivery system to thing transistors that allow for smaller more powerful computer chips, unsurprisingly Nano technology applications are set to grew significantly in the coming years.

#### **REFERENCE:**

1)Environmental applications of semiconductors photocataylsis,Michale R.Hoffmann,Scot

T.Martin, Wonyong chori and Detlof W.Bahnemant, chemical Review 1995, 95-69-96.

2)Barakat N and H.Jiao "propsed strategies for teaching ethitcs of

Nanotechology .Nanothics journal, springer , Netherlands .sep 2010. 3)Jiao N.Barkat ,Ion

senstive field effect transistor PH sansor .china Nano, Bejing 2011.

4)Application of Nanotechlogy in textiles engineering an are review J.K.patra And S.gouda,Journal

of engineering and technology research 2013,55,104-11.

5)selected applications of Nanotechlogy is textiles ,wong YWH Yuen CMW, Leung MYS,KU SKA, Can HLI AVTEX Res.J 2006(1) 1-8.