



SNS COLLEGE OF TECHNOLOGY

Vazhiampalayam, Coimbatore-35

(An Autonomous institution)

Accredited by **NBA-AICTE** and Re-Accredited by **NAAC-UGC with A+ Grade**

Approved by **AICTE**, New Delhi & Affiliated to **Anna University**, Chennai



DEPARTMENT OF CHEMISTRY

COURSE NAME : 19CHB101- CHEMISTRY FOR ENGINEERS

I YEAR / I SEMESTER

UNIT : 2.NANOCHEMISTRY

TOPIC : 6. APPLICATIONS OF NANOTECHNOLOGY



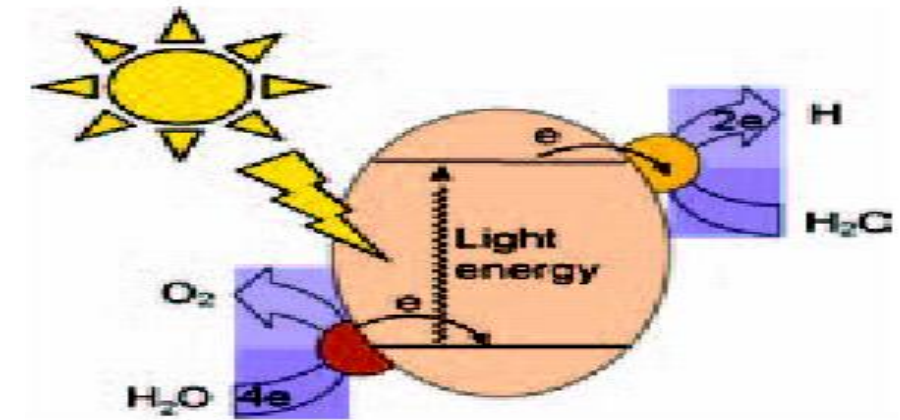
APPLICATIONS OF NANOTECHNOLOGY





NANOTECHNOLOGY IN ENERGY PRODUCTION

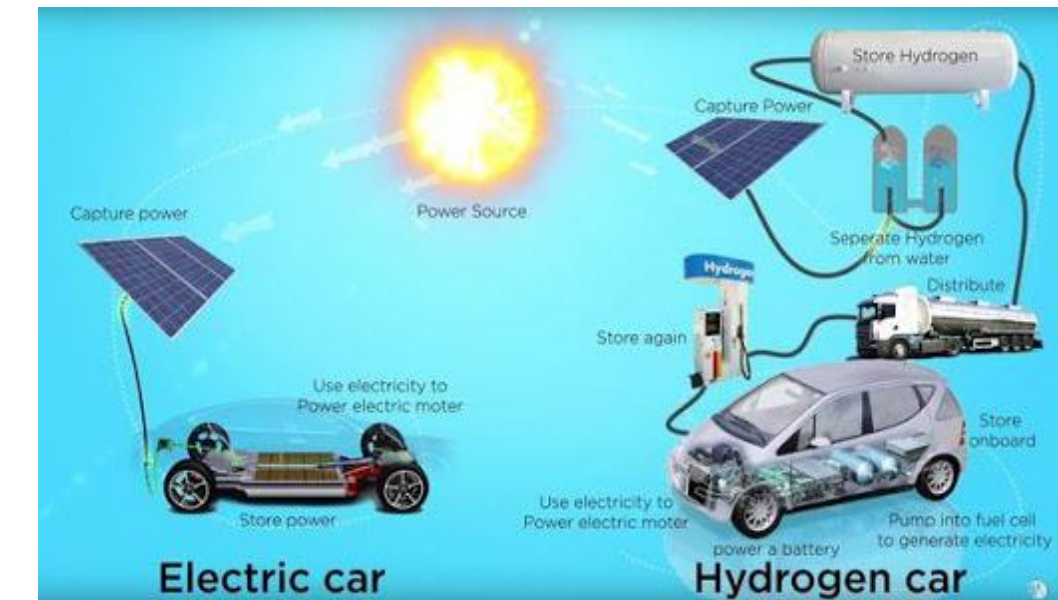
- Generating steam from sunlight
- Sunlight concentrated on nanoparticles generates electricity
- Producing high efficacy light bulbs
- A nano engineered polymer matrix - high efficiency light bulbs
- Increasing the electricity generated by windmills
- An epoxy containing CNT is used to make stronger and lower weight windmill blades





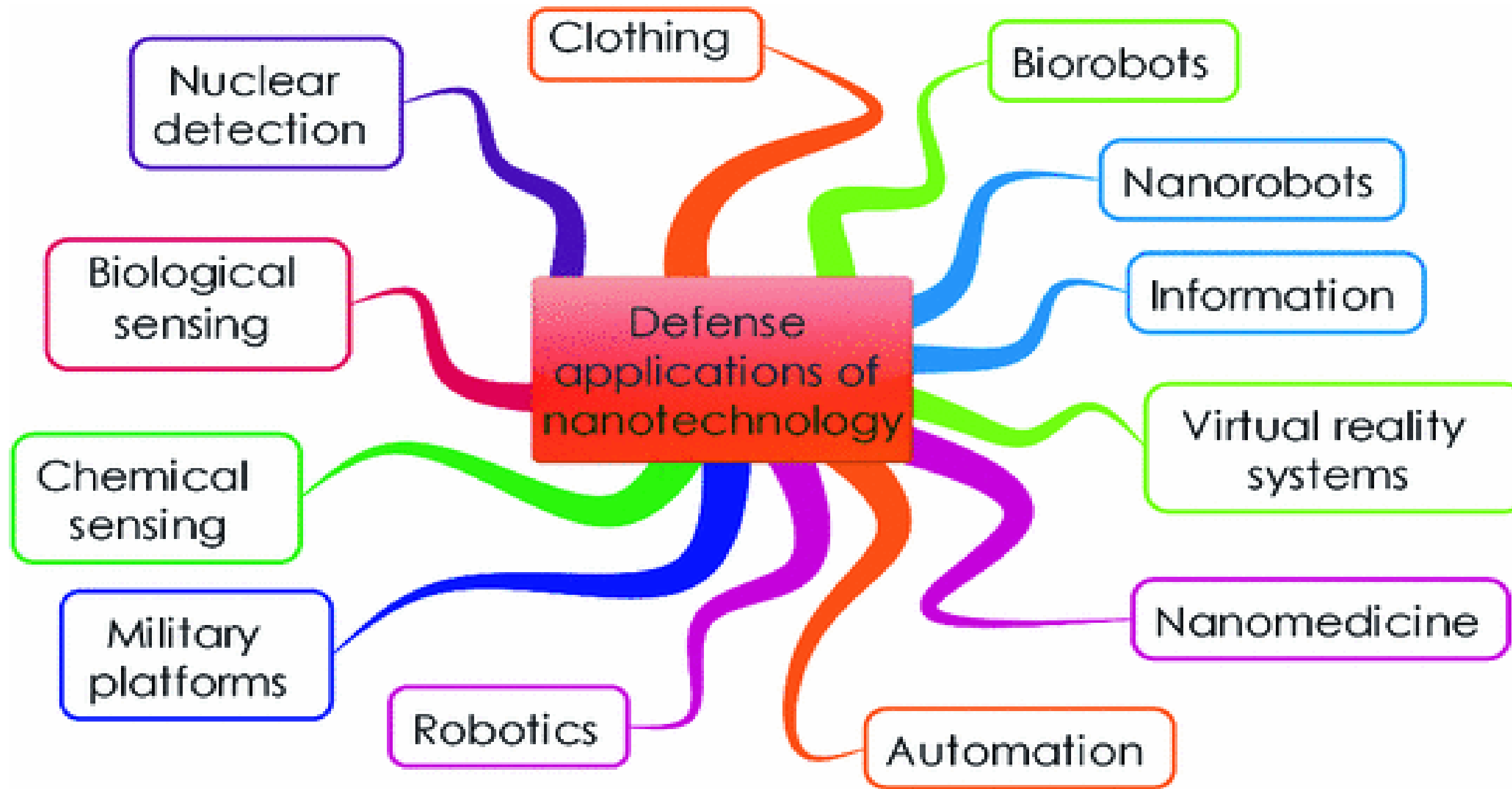
NANOTECHNOLOGY IN ENERGY PRODUCTION

- Storing hydrogen for fuel cell powered cars
- Graphene layers are used to store hydrogen in an fuel tank, thereby the weight of the fuel tank
- Reducing power loss in electric transmission lines
- Wires containing carbon nanotubes has lower resistance and transmit electricity without power loss
- Reducing the cost of solar cell
- Nanotech solar cells are manufactured at lower cost than conventional solar cells





NANOTECHNOLOGY IN DEFENCE

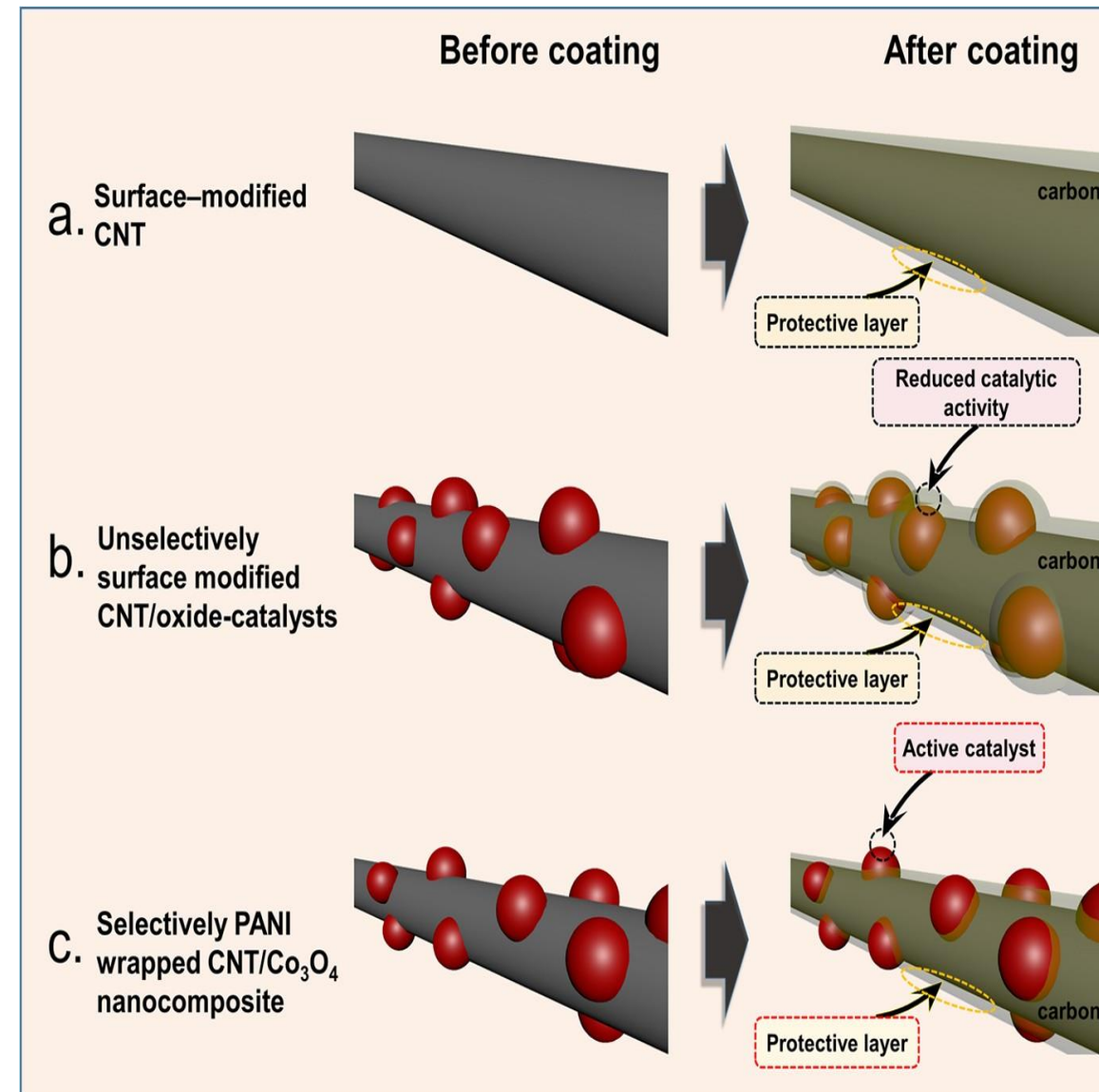




NANOTECHNOLOGY IN DEFENCE



- Nano battle suit is being developed as thin and contains health monitors and communication equipment's
- CNT polymer composite works on air craft that swings its wings for more lift for take off and landing





Activity



NANOTECHNOLOGY IN AGRICULTURE

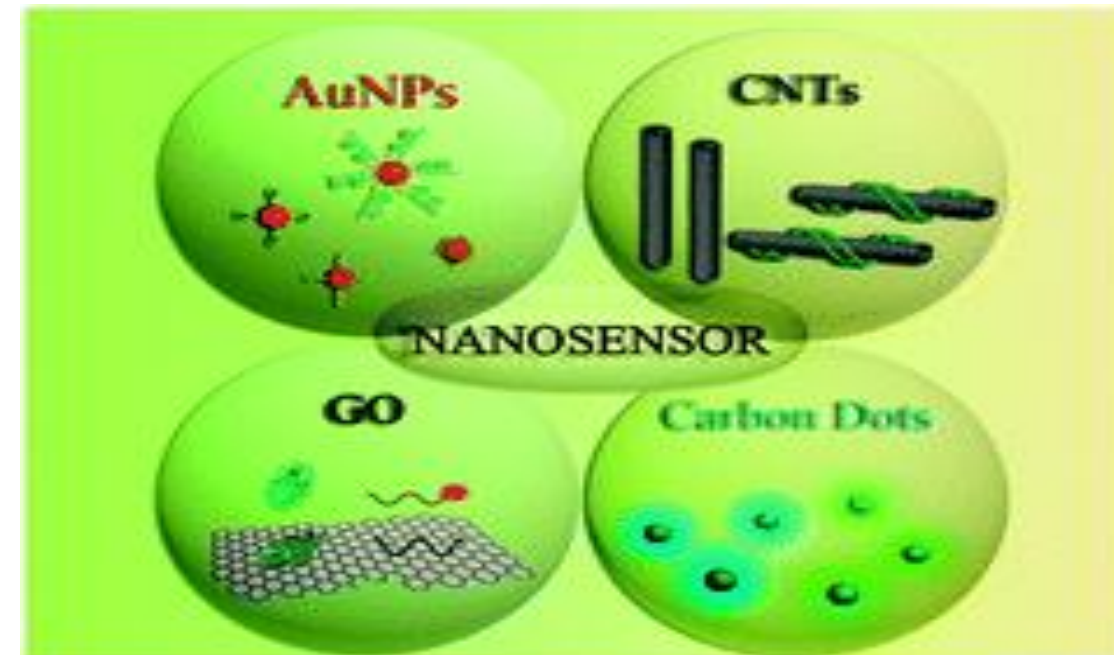




NANOTECHNOLOGY IN AGRICULTURE



- Nanoporous Zeolites for slow release ,efficient dosage of water and fertilizers for plants and of nutrients
- Nano sensors for soil quality and plant health monitoring
- Nano magnets for removal of soil contaminants

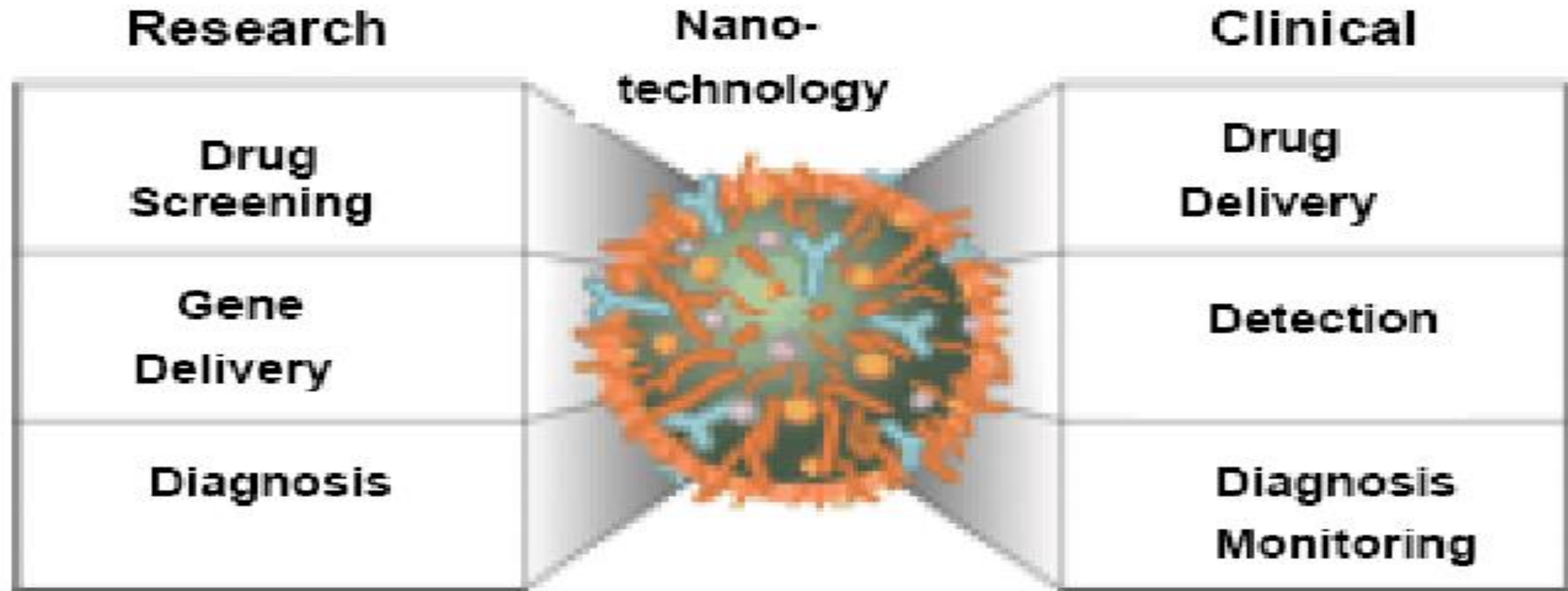




NANOTECHNOLOGY IN MEDICINE



Medical Application

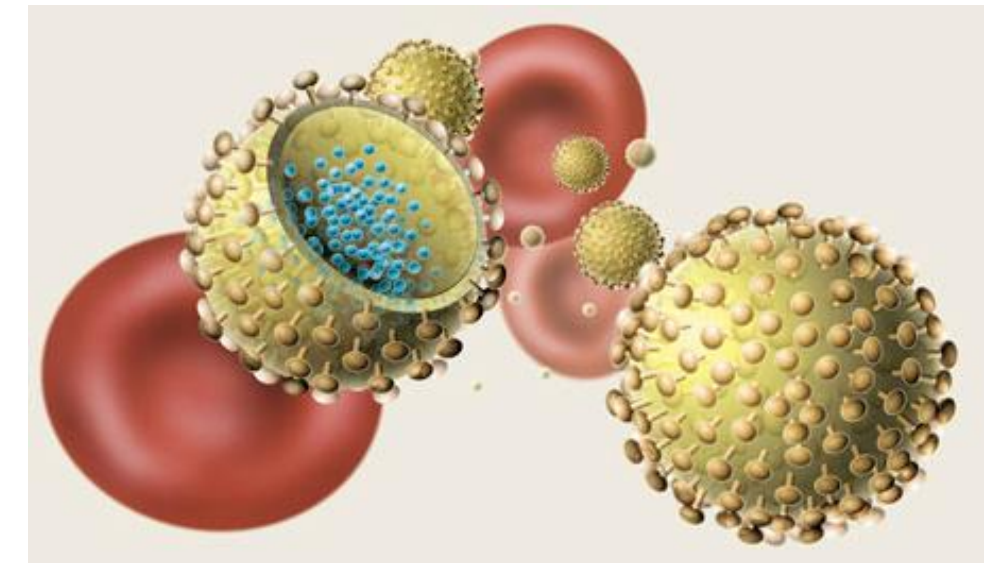




NANOTECHNOLOGY IN MEDICINE



- Nanomaterials are used as drug for curing cancer, gold coated nano shells are used for the destruction of tumours.
- Gold nanoshells are used in analysis the protein and blood content
- Nanomaterials are used as bone cement, bone plates and joint replacement
- Manufacturing of heart valves, contact lenses etc
- Nanomaterials are also used in dental implants and breast implants
- In tissue engineering, nanomaterials are used to reproduce or to repair the damaged tissues





ASSESSMENT



1. Write down any two applications of nanotechnology in medicine?

2. List out various applications of nanotechnology.



SUMMARY



REFERENCES

1. Dr.V.Veeraiyan, “Engineering Chemistry-II ”VRB Pub. Co. Ltd, Chennai.2016.
2. Wiley, “Engineering Chemistry”, John Wiley & Sons. InC, USA.
3. P.C.Jain & Monicka Jain, “Engineering Chemistry” , Dhanapat Rai Publising Company Pvt. Ltd. 2017.

THANK YOU