

M.Sc. SEM – 3 INORGANIC CHEMISTRY (NEW COURSE)
CHNN 605(B) SMART NANO MATERIALS
SUBJECTIVE ELECTIVE

કુલ સમય :— ૩૦ મીનીટ

કુલ પ્રશ્નો : ૩૫

વિદ્યાર્થીએ ટીક કરવાના પ્રશ્નો : ૨૫

નોંધ : વિદ્યાર્થીએ માત્ર ૨૫ પ્રશ્નો જ ટીક કરવાના રહેશે. જો વધારે ટીક કરેલ હશે તો પ્રથમ ૨૫ પ્રશ્નો જ ગણતરીમાં લેવામાં આવશે.

- The synthesized magnetic nano particles from _____ have been found to self-arrange automatically.
 a) Zinc b) Copper c) Iron d) Zirconium
- The nano particles from iron and palladium are used to produce _____.
 a) Magnets b) Magnetic lens c) Magneto meters d) Magnetic storage devices
- Nano particles target the rare _____ causing cells and remove them from blood.
 a) Tumour b) Fever c) Infection d) Cold
- _____ is the field in which the nano particles are used with silica coated iron oxide iron oxide.
 a) Magnetic applications b) Electronics c) Medical diagnosis d) Structural and mechanical materials
- DNA detection through the _____ by using the oligonucleotide functionalised gold nano crystals is developed.
 a) Colorimetric b) Diathermy c) Electro therapy d) Treatment tables
- Coating the nano crystals with the ceramics is carried that leads to _____.
 a) Corrosion b) Corrosion resistant c) Wear and tear d) Soft
- The _____ to the ceramics are superior coatings.
 a) Nano particles b) Nano powder c) Nano crystals coating d) Nano gel
- _____ of ceramic components are easier through nano structuring.
 a) Lubrication b) Coating c) Fabrication d) Wear
- By nano scale distribution of the _____ in matrix improves the life and performance.
 a) Carbide b) Tungsten c) Hydrides d) Nitrites
- The extensively used nano particles as catalyst is _____.
 a) Silver b) Copper c) Gold d) Cerium
- Due to _____ tensile strength some of the nano materials are used in air crafts.
 a) High b) Low c) Moderate d) No
- Fabrics are extensively made out of nano materials like _____.
 a) Carbon nano tubes b) Fullerenes c) Mega tubes d) Polymers
- Carbon nano tubes are the sheets of graphite about _____.
 a) 0.1nm b) 0.2nm c) 0.3nm d) 0.4nm
- Carbon nano tubes are also called as _____.
 a) Bucky tubes b) Bulky tubes c) Bulk tubes d) Buck balls
- In how many methods the CNT can be prepared?
 a) 1 b) 2 c) 3 d) 4
- A water cooled surface is used in the process to collect _____.
 a) Nano particles b) Nano tubes c) Nano spheres d) Nano sheets
- Which of the following is not an inorganic functional material?
 a) Ferroelectric b) Reverse micelles c) Magnetic field sensor d) Light detectors
- Which of the following is not an aerospace material?
 a) Plastics b) Silica c) Aluminium alloys d) Polymers

19. Select the incorrect statement from the following option.

- a) Metals are extremely good conductors of heat and electricity
- b) The properties of metal degrade rapidly with temperature
- c) Metals have poor corrosion resistant
- d) A polished metal surface has a dull appearance

20. Which one of the following is the best heat and corrosion resistant material?

- a) Metals
- b) Ceramics
- c) Polymers
- d) Semi-conductors

21. Select the incorrect statement from the following option.

- a) Composites are optically opaque materials
- b) Carbon fiber reinforced composite materials are not used in space vehicles
- c) Re-cyclability of composite material is poor
- d) Processing of composite material is difficult

22. Which type of material expands and contract in response to an applied electric field?

- a) Advanced material
- b) Smart material
- c) Biomaterial
- d) Nanomaterial

23. Which one of the following is non-linear material?

- a) Zirconium oxide
- b) Magnetite
- c) Maghemite
- d) Lithium niobate

24. Which of the following is not an application of nanomaterials?

- a) TV and computer monitors
- b) Cardiology
- c) Magnetic Resonance Imaging (MRI)
- d) Sunscreens and fuel cells

25. The four types of Artificial nanomaterials are _____

- a) Carbon-based, non-metallic, composites and ceramics
- b) Carbon-based, metallic, composites and ceramics
- c) Carbon-based, non-metallic, composites and dendrimers
- d) Carbon-based, metallic, composites and dendrimers

26. HyFn stands for _____

- a) Hydrated Fluorine
- b) Hydrolysed Fluorine
- c) Hydrolysed Fullerene
- d) Hydrated Fullerene

27. Nano sized polymers built from branched units are called _____

- a) Dendrimers
- b) Composites
- c) Carbon-based materials
- d) Metal-based materials

28. Which property of nanoparticles provides a driving force for diffusion?

- a) Optical Properties
- b) High surface area to volume ratio
- c) Sintering
- d) There is no such property

29. The colour of the nano gold particles is _____

- a) Yellow
- b) Orange
- c) Red
- d) Variable

30. On both ends of the CNTs, which carbon nanostructure is placed?

- a) Graphite
- b) Diamond
- c) C₆₀
- d) Benzene

31. Quantum dots can be used in _____

- a) Crystallography
- b) Optoelectronics
- c) Mechanics
- d) Quantum physics

32. Vesicle is a type of _____

- a) Nanostructure
- b) Nanoparticle
- c) Nanocrystal
- d) Supramolecular system

33. For the synthesis of CNTs, the quartz tube is heated up to _____

- a) 1000°C
- b) 1200°C
- c) 1400°C
- d) 1600°C

34. Carbon nanotubes are poor transmitters of electromagnetic radiations due to their _____

- a) High conductivity
- b) Large surface area
- c) High porosity
- d) Chemical Stability

35. CNTs stands for _____

- a) Carbon Nanotubes
- b) Carbon Nanotechnology
- c) Carbon Nanoscience and technology
- d) Carbon Nine Technology