Long Answer Questions (4-Marks)

i) Define rubber. Write the chemical reactions for the preparation of following polymers.

a) teflon b) polyisoprene c) polyacrylonitrile d) SBR

ii) Explain the reactions involved in the preparation of viscose rayon.

Chapter-16

Green Chemistry and Nanochemistry Marks 3 with option 4

Multiple choice questions (1 Mark)

i) Bottom ash of thermal power stations can be used as raw material for cement and brick industry. This example illustrates which of the following principle of green chemistry

a) Atom economy.
b) Designing safer chemicals.
c) Design for energy efficiency.
d) Prevention of waste or by products.

ii) Less hazardous chemical synthesis point of view instead of harmful DDT Now a days ---------- is used as insecticides

a) Benzene
b) BHC
c) Chlorobenzene
d) Ethanol

iii) The concept that aims to maximize efficiency and minimize hazardous effect on human health and environment was coined by Paul T.Anastas

a) Green revolution
b) Blue revolution
c) Nano chemistry
d) Green Chemistry

iv) Nanorods are the example of ---------

a) One dimensional nanostructure
b) Two Dimensional nanostructure
c) Three dimensional nanostructure
d) Zero dimensional nanostructure

v) Which nanoparticles act as highly effective bacterial disinfectants, removing E.Coli from water?

a) Gold nanoparticles
b) Silver nanoparticles

c) TiO_2 nanoparticles d) ZnO nanoparticles

vi) Catalyst used for hydrogenation of oil is-------

a)V_2O_5 b) Fe

c) Raney Ni d) MnO_2

vii) In green technology developed by Drath and Frost, adipic acid is enzymatically synthesized from

a) Sucrose b) lactose

c) maltose **d) glucose**

Very short answer Questions (1 Mark)

i) Name the catalyst used to manufacture of H_2SO_4 by contact process

ii) Name the plant which is an example of self-cleaning

iii) Write the name of a metal nanomaterial, which is used as a bacterial disinfectant.

iv) Name the γ-isomer of Benzene hexachloride

v) Which principle of green chemistry has its perspective towards to carrying out reactions at room temperature and pressure

vi) Write any example of nanoparticles which are used in photo catalysis.

vii) Write the name of the technique used to determine the geometry of nanomaterial.

viii)Write the name of the nanostructured material that is used to increase the life of a car tyre.

ix) Write the name of a nanomaterial synthesis process based on inorganic Polymerization.

Short Answer Questions (Type-I) (2-Marks)

1) Define: Atom economy. Write the formula to calculate % atom economy

2) Define i) Green chemistry ii) Nanochemistry

3) Write one example of safer solvent and hazardous solvent

4) How does nanochemistry play an important role in water purification?

Short Answer Questions (Type-II) (3-Marks)

1) Explain prevention of waste or by-products which is one of the principles of green chemistry.

2) Write any three advantages of nanoparticles and nanotechnology.

3) Write one example of nanomaterial used in following

i) water purification

ii) tyre of car

iii) ancient glass painting

4) Explain the role of green chemistry.

5) Explain any three characteristic features of nanoparticles.

6) State Disadvantages of nanoparticles and nanotechnology.

7) Define : a) Green chemistry b) Atom economy c) Sustainable development

8)Write three principles of green chemistry with examples.

Long Answer Questions (4-Marks)

1) i) Explain the term sustainable development

ii) How is nanotechnology useful for the energy sector?

2) i) Write a short note on catalytic activity of nanoparticles.

ii) Complete and write the following table

S/N	Nanomaterial dimension	Nanomaterial type
a)	One dimension <100 nm	----------
b)	Two dimension <100 nm	----------

3) i) Explain use of safer solvent by giving suitable examples.

ii) Define a) Nanomaterial

b) Nanotechnology