PG/IIS/CEM/204/23(CBCS)
(Old)

M.Sc. 2nd Semester Examination, 2023

CHEMISTRY

PAPER – CEM-204(CBCS)(Old)

Full Marks : 40

Time : 2 hours

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

GROUP – A

1. Answer any *four* questions : 2×4

(*a*) Write the name of the product Tris-Biphenyl Triazine (nano) is used.

(*b*) What are advantages of Nanoliposomes used in cosmetics ?

(*c*) What is the function of Methylene bis-

-benzotriazolyl tetramethylbutylphenol (nano) ?

(*d*) How Solid Lipid Nanoparticles (SLN) are act in skin care product ?

(*e*) What is coercivity ?

(*f*) Graphically show the size dependence of a property on the number of atoms (x) in the nano dimension.

GROUP – B

2. Answer any *four* questions : 4×4

(*a*) What are the advantages and disadvantages of w/o microemulsion technique in the synthesis of otherwise water insoluble inorganic material ?

(*b*) Write a short note on the Coulomb-Staircase behaviour in the I-V plot of the nano -particle.

(*c*) Nano-silver particles are used in anti -bacterial fabrics. Why ?

(*d*) Silica nanoparticles have attracted interest from cosmetic industry. Why ?

(*e*) What are advantages of Nanomaterials -based cosmetics ?

(*f*) How nano-particle can be used for modulation of skin colour ? Explain with an example.

GROUP – C

Answer any **two** questions : 8×2

3. (*a*) Which nano particle is used to cure dental caries and periodontal diseases ? How it work ?

(*b*) What are the benefits of the use of nano-particles in cosmetics ? 4 + 4

4. (*a*) Why we want to use nano fertilizer ? How

can we prepare nano fertilizer ? What are the advantages of use of nano fertilizer over normal fertilizer ?

(*b*) What are the advantages of Nanofiltration used for the purification of water ? 1 + 2 + 3 + 2

5. (*a*) How nanoparticle are applied for food packaging ? How new developments in nanoscience and nanotechnology will allow more control and have the potential of increased benefits ? What is a smart package ?

(*b*) What are Smart drugs ? Draw the schematic diagramme for the action of it. 2 + 2 + 2 + 2

6. (*a*) Write notes on the following reduction method for the synthesis of nanoparticle : borohydride reduction, citrate reduction, alcohol reduction, solvothermal method.

(*b*) How could you measure the band gap of nanocolloidal dispersion by optical method? 4 + 4
