

SUBJECT: NANO CHEMISTRY

Day : Friday
Date : 07/12/2018

W-2018-3080

Time : 11.00 AM TO 02.00 PM
Max Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Answers to both the sections should be written in **SEPERATE** answer books.
 - 4) Draw neat and labeled diagrams **WHEREVER** necessary.
 - 5) Assume suitable data, if necessary.
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SECTION-I

Q.1 Describe the differences between ionic and covalent bonds. Give suitable examples. (10)

OR

Describe the various laws of Thermodynamics. Hence explain 'entropy' and 'enthalpy'.

Q.2 Describe any one chemical method for nanoparticle synthesis. (10)

OR

Describe various laws of photochemistry and their potential applications in Nanochemistry.

Q.3 Give an overview of phenomenon of luminescence. (10)

OR

Describe any one chemical method for experimental measurement of diffusion.

SECTION-II

Q.4 Describe the properties of a) conductors b) semiconductors c) metals d) insulators, with respect to energy band theory. (10)

OR

What are organo metallic compounds? State their synthesis method of oxide nanoparticles using the same.

Q.5 Describe the molecular orbital theory. (10)

OR

Discuss the 'Raman effect'. State its potential applications in various fields.

Q.6 Define "Surfactants". State their properties and role in Nanochemistry. (10)

OR

Write short notes on

- a) Theory of solutions
- b) Jablonski diagram

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