MASTER OF TECHNOLOGY (NANO TECHNOLOGY) (CBCS- 2015 COURSE)
M. Tech. (Nano Technology) Sem-I :SUMMER- 2022
SUBJECT : NANOSCIENCE & NANOTECHNOLOGY

Day : Monday
Date : 18-07-2022

S-14242-2022

Time : 10:00 AM-01:00 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 **SEPARATE** answer books.
4) Assume suitable data, if necessary.

SECTION – I

Q. 1 Define Nanotechnology? List various methods currently being used for synthesis of nanomaterials. Explain any one bottom-up approach for synthesis of nano material in detail. **(10)**

OR

Explain any three Top-down approaches for synthesis of nanomaterial. **(10)**

Q. 2 Explain with suitable example wet chemical synthesis and gas phase synthesis method. Give its advantages and limitations. **(10)**

OR

What is nano composite? Explain with suitable example any two methods to synthesis any nano-composite. **(10)**

Q. 3 Give the classification of biological nanostructures. Explain the role of bio-nano machine, biological membrane and nano-robots. **(10)**

OR

What is nano-wire or nano tubes? Explain effect of diameter and length scale of nano-wire or nano tubes on its behavior and application. Justify with example. **(10)**

SECTION – II

Q. 4 Explain with suitable example, how 1D nanomaterial vary their properties at different nano scale levels and applications. **(10)**

OR

Explain with suitable example, how 2D nanomaterial vary their properties at different nano scale levels and applications. **(10)**

Q. 5 What is gram size effect? How it effects on the strength of metals at nano level. Justify with example. **(10)**

OR

Explain the use of quantum wires for electronic transport. If this property exploited at commercial level. **(10)**

Q. 6 Explain the applications with suitable nanomaterials in the field of electronics, medicine and catalysts. **(10)**

OR

Explain the applications with suitable nanomaterials in the field of photonics, environment and medicine. **(10)**

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