Total No. of Questions : 6]

SEAT No. :

P1575

[Total No. of Pages : 2

BE/Insem/APR-242
B.E. (Chemical)
NANOTECHNOLOGY
(2015 Pattern)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates:

1) ***Answer Q.1 or 2, Q.3 or 4, Q.5 or 6.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) Explain in detail electrical, magnetic, optical, thermal, and mechanical properties of nano-structured materials. **[10]**

OR

Q2) a) Explain in detail the methods used for synthesis of carbon nanostructures? **[6]**

b) Write a short note on fullerenes & metallofullerenes? **[4]**

Q3) a) What are the basic chemical reactions involved in CVD process? Give some examples. **[6]**

b) Explain molecular beam epitaxy for synthesis of nanoparticles? **[4]**

OR

Q4) a) State merits & demerits of solution based nanomaterials fabrication techniques. **[5]**

b) Explain pulsed laser deposition with its schematic layout. List its advantages. **[5]**

P.T.O.

Q5) a) Explain the principle of working of x-ray diffraction method. **[6]**

b) Write a short note on optical microscopy. **[4]**

OR

Q6) a) Explain with neat sketch principle and operation of Scanning Electron Microscope. **[5]**

b) With a neat sketch explain principle and operation of Atomic Force Microscopy. **[5]**

❍❍❍