

**M. Tech. (Nano Technology) Sem-III (CBCS – 2015 Course) :**  
**WINTER - 2018**  
**SUBJECT-SELF-STUDY PAPER-I: SYNTHESIS AND DESIGN NANOSCALE**  
**PRODUCTS**

Day: Saturday  
Date: 08/12/2018

**W-2018-3095**

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) Assume suitable data if necessary.

**SECTION I**

**Q.1** Give a detailed classification of nanomaterials based on dimensions. **(10)**

**OR**

Describe the significance of Si based QDs for solar cell applications.

**Q.2** Discuss any one bottom up approach for synthesis of nanopowders. **(10)**

**OR**

List the differences between SWCNTs and MWCNTs from view point of properties and applications.

**Q.3** Describe any one method for synthesis of metal oxide nanoparticles. **(10)**

**OR**

Describe any one method for synthesis of magnetic nanoparticles.

**SECTION II**

**Q.4** List various applications of nanomaterials in the construction sector. **(10)**

**OR**

Discuss the potential role of nanoparticles in waste water treatment. Give specific examples.

**Q.5** Which nanomaterials find application in fabrication of sensors? Justify **(10)** giving suitable examples.

**OR**

Give an overview about applications of Nanotechnology in defense and aerospace.

**Q.6** Write a short note on Nanoscale MOSFETs **(10)**

**OR**

Write a short note on QDs as biological markers.