

**M. TECH. (NANO TECHNOLOGY) SEM-IV (CBCS – 2015  
COURSE) : SUMMER - 2018**

**SUBJECT: SELFSTUDY – II: g) NANO BIOELECTRONICS**

Day: **Tuesday**  
Date: **19/06/2018**

**S-2018-2962**

Time: **11.00 AM TO 02.00 PM**  
Max. Marks: 60

**N.B.:**

- 1) All questions are **COMPULSORY**.
- 2) Both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the **RIGHT** indicate full marks.
- 4) Draw neat labeled diagrams **WHEREVER** necessary.
- 5) Assume suitable data, if **NECESSARY**.

**SECTION –I**

**Q.1** Define the term 'Nanoelectronics'. Add a note on significance of coupling biology with nano electronics. **[10]**

**OR**

Describe the C based nanostructures. Elaborate their application in various fields.

**Q.2** Discuss the significance of semiconductors from view point of applications. Give suitable examples. **[10]**

**OR**

Explain the top down route to semiconductor fabrication.

**Q.3** Define 'Protein nanopores'. State their significance for biomedical applications. **[10]**

**OR**

Define 'Nanobots'. Describe their role in cancer treatment. Give suitable examples.

**SECTION –II**

**Q.4** Define and explain 'Regenerative medicine'. **[10]**

**OR**

Discuss the role of Nanotechnology in tissue engineering.

**Q.5** Explain the term 'Biomimetics'. Add a role on its impact in biomedical field. **[10]**

**OR**

Explain the principle and working of a bio-sensor. State their types and applications.

**Q.6** Discuss how DNA is explored for its role in Nanobiotechnology. Justify giving suitable examples. **[10]**

**OR**

What are scaffolds? How are they biofunctionalized for medical applications?