DEPARTMENT OF PHYSICS

TEST-I (Winter Semester, February 2015)

PHYSICS OF NANOSTRUCTURES & NANOSCALE DEVICES (PH4004)

Duration: 1hr Total Marks: 15

Each question carries 3 marks.

1 Detail different electron fundamental lengths in solids.

2 Explain what do you mean by semiconductor homojunctions and heterojunctions, citing examples.

3 Explain the terms: superlattices and minibands.

4 With an appropriate schematic representation give a detailed description of the working of the crystal growth technique, Molecular Beam Epitaxy (MBE).

5 What do you mean by Band-gap engineering? Explain how it is realized in practise.