ABES Engineering College, Ghaziabad

Department of Applied Sciences & Humanities

Session: 2023-24 **Semester: II** **Section: Common to All**

Course Code: BAS201 **Course Name: Engineering Physics**

Assignment 5 (Superconductors and Nanomaterials)

Date of Assignment: **Date of submission:**

1. a) What is the vortex state of a superconductor. (2023-24 ODD SEM) (K1, CO5)
   b) What are high-T_c superconductors? Give some examples. (K1, CO5)
2. a) Define transition temperature, critical current, critical magnetic field and persistent current. (ODD SEM 2023, 2015-16). (K1, CO5)
   b) What do you mean by superconductivity. (K1, CO5)
   c) Explain the effect of temperature on electrical resistivity of superconducting materials. (2017-18) (K1, CO5)
3. a) What is isotope effect? (K1, CO5)
   b) What is the value of critical field of a superconductor at transition temperature? (2015-16)
4. a) What do you mean by Meissner effect? (2016-17)
   b) Mention any three properties which shows change in superconducting state in comparison to normal state. (2010-11)
5. a) What are nanomaterials. (K1, CO5)
   b) Write two applications of nanomaterials. (K1, CO5)
   c) Define quantum dot, quantum well and quantum wire. (K1, CO5)
6. a) What are the properties of nanomaterials. (K1, CO5)
   b) Explain quantum confinement effect in nanomaterials? (2023-24 even sem) (K1, CO5)