

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) - EXAMINATION – SUMMER 2018****Subject Code:2163906****Date:10/05/2018****Subject Name:Nanomagnetism and NanoFluids****Time:10:30 AM to 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) What are magnetic materials? Define types of magnetic materials **03**
(b) Give comparison between ferromagnetic materials and ferromagnetic materials. **04**
(c) Explain any four types of magnetic materials on the base of magnetization. **07**
- Q.2** (a) What is nonlinear magnetic behavior? Give its example. **03**
(b) Explain magnetic hysteresis loop with neat sketch **04**
(c) Explain temperature effect on magnetization and susceptibility. **07**
- OR**
- (c) Explain nano scale effect on properties of magnetic materials. **07**
- Q.3** (a) Define nano magnet with examples. **03**
(b) What is fluid? Explain magnetic fluid. **04**
(c) Explain B-H loop of magnetic materials **07**
- OR**
- Q.3** (a) Define ferrofluid with their examples. **03**
(b) Explain properties of ferrofluid. **04**
(c) Explain sintering temperature effect on properties of nano magnets. **07**
- Q.4** (a) Define bottom up and top down approach to prepare nano fluid. **03**
(b) Describe temperature effect on properties of nano fluid. **04**
(c) Write short note on application of nano fluid. **07**
- OR**
- Q.4** (a) Define stability of nano fluid. **03**
(b) Discuss magnetization of nano fluid **04**
(c) Explain sol –gel technique to synthesize nano fluid. **07**
- Q.5** (a) What is electro discharge technique? **03**
(b) Explain Electro discharge technique to prepare nano fluid. **04**
(c) Explain smart cooling nano fluid and write their applications. **07**
- OR**
- Q.5** (a) What is step one technique to prepare nano fluid? **03**
(b) Explain stability of nano fluid. **04**
(c) Describe applications of magnetic materials as memory storage device. **07**
