CBCS Scheme

USN | | | | | | | | | | |

15NT32

Third Semester B.E. Degree Examination, June/July 2018
Basics of Material Science

Time: 3 hrs. Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

1 a. Write a brief note on nanomaterials and their classification. **(08 Marks)**

b. Discuss in detail about shape memory material. **(08 Marks)**

OR

2 a. What are piezo electric materials? Explain its first application on piezo electric effect and give other applications. **(08 Marks)**

b. Explain the importance and applications of ferroelectric and ferroelectric materials. **(08 Marks)**

Module-2

3 a. What is electrical resistivity? Explain the measurement of electrical resistance by four probe method. **(10 Marks)**

b. Discuss about super conductor and their technological application. **(06 Marks)**

OR

4 a. With the help of band gap energy and bonding model, explain in detail about conductor, semi conductor, and insulator. **(12 Marks)**

b. Distinguish between BJT and MOSFETs. **(04 Marks)**

Module-3

5 a. Explain absorption spectroscopy and concepts of measuring absorbance. **(08 Marks)**

b. Discuss about photonics, importance and applications of photonic materials. **(08 Marks)**

OR

6 a. Write a short note on birefringence and birefrigent materials. **(08 Marks)**

b. Write a detailed note on scattering. **(08 Marks)**

Module-4

7 a. Explain briefly about thermal conduction and thermal conductivity. **(08 Marks)**

b. Discuss the importance and applications of TMR and CMR. **(08 Marks)**

OR

8 a. Discuss about the classification of magnetic materials. **(10 Marks)**

b. Explain about the properties and applications of magnetic thin film. **(06 Marks)**

Module-5

9 a. Write a brief note on the point defects of materials. **(10 Marks)**

b. Explain about tensile strength and compression strength. **(06 Marks)**

OR

10 a. Explain about Burger's vector and its representation in edge dislocation and screw dislocation. **(08 Marks)**

b. Discuss briefly about surface imperfections. **(08 Marks)**

* * * * *

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.