Scheme – I
Sample Question Paper

Program Name : Diploma in Electronics Engineering Program Group
Program Code  : EJ/DE/ET/EN/EX/EQ
Semester   : Second
Course Title    : Electronic Engineering Materials
Marks   :  70          Time : 3 Hrs.

Instructions:
(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

Q.1 Attempt any FIVE of the following.                                         10 Marks
   a) List any two applications of secondary emission.
   b) List any two dielectric properties of polymeric material.
   c) List any two magnetic materials.
   d) Draw energy level diagram of conductor and insulator.
   e) Define superconductivity.
   f) List any two trivalent and any two pentavalent impurity materials
   g) Give the relevant combination of materials for LED to emit red and green color.

Q.2 Attempt any THREE                                                                           12 Marks
   a) Explain thermoelectric effect and give its any two application.
   b) Explain the concept of ferroelectricity and state its anyone application.
   c) Describe the breakdown in solid dielectric materials.
   d) Explain the process of photoelectric emission.

Q3. Attempt any THREE                                                                      12 Marks
   a) Explain the process of diffusion in semiconductor material.
   b) Identify the material offering higher resistivity from following fig. no.1
   c) Suggest the relevant materials used in flexible and wearable antenna.
d) Differentiate between anti-ferromagnetism and ferrimagnetisms.

Q4. Attempt any THREE

a) Explain the principle of stimulated emission and radiation in LASER.

b) Explain the piezoelectric effect and give any two materials which exhibit this effect.

c) Explain Magnetostriiction property of ferromagnetic material.

d) Explain the effect of change in temperature on conductivity of semiconductor.

e) Explain the characteristics of good insulating material.

Q5. Attempt any TWO

a) Suggest the suitable material for i)Thermionic emission ii) photoelectric emission and explain any one emission process. Give one application of each.

b) Identify the material based on given Hysteresis loop in fig No.1 and fig. No 2 and describe any one.

![fig no.1](image1.png)

![fig.no.2](image2.png)

c) Write one applications for the given dielectric material
   (i) Mica (ii) Porcelain (iii) Polythene (iv) Bakelite (v) Rubber (vi) cotton.

Q6. Attempt any TWO.

a) State any four materials used in fabrication of semiconductor device and describe its need.

b) On the basis of given properties identify the magnetic materials (i) Permanent magnetic dipole (ii) Diamagnetism(iii) Paramagnetism (iv) Ferromagnetism.

c) Describe Hall Effect and state its application.
Instructions:
(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

Q.1. Attempt any FOUR of the following 08 Marks
   a) Define conductor, Insulator with examples
   b) Mention the use of dielectric materials
   c) Define the term polymerization
   d) Define Superconductivity
   e) List the different types of conducting materials
   f) Define dielectric loss

Q.2. Attempt any THREE of the following 12 Marks
   a) Describe the effect of temperature on superconductivity of metals
   b) Describe the breakdown in liquid dielectric materials
   c) Describe the factors affecting on Mobility
   d) Describe the different modes of emission
Scheme – I
Sample Test Paper - II

Program Name : Diploma in Electronics Engineering Program Group
Program Code : EJ/DE/ET/EN/EX/EQ
Semester : Second
Course Title : Electronic Engineering Materials
Marks : 20

Time: 1 Hour

Instructions:
(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

Q.1. Attempt any FOUR of the following 08 Marks
   a) Define diamagnetic, paramagnetic and ferromagnetic.
   b) List the materials for fabrication of semiconductor devices.
   c) List different impurities used to emit different colors of light.
   d) Define diffusion.
   e) Give the classification of magnetic materials.
   f) Give different functions of antenna.

Q.2. Attempt any THREE of the following 12 Marks
   a) Explain electroluminescence.
   b) Sketch energy band diagrams of conductors, semiconductors.
   c) Explain the effect of thermal and electrical conductivity on semiconductor materials.
   d) Give the materials used for flexible and wearable antenna.