PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2017
(Sixth Semester)

Branch- PHYSICS

, 14-pfj UJ2-1

MATERIAL SCIENCE

Time : Three Hours ᵥ   Maximum : 75 Marks

SECTION-A (20 Marks)
Answer ALL questions
ALL questions carry EQUAL marks *   (1 0 x 2 = 20)

1   Define space lattice.
2   Define Meissner effect.
3   What is meant by Schottky imperfection?
4   • What are semiconductor? Give example.
5   State Curie's law for paramagnetism.
6   What are ferromagnetic domains?   '
7   ~ What are nano materials?
8   * Mention the name of different types of quantum dots method.
9   Define fatigue.
10   Define resolving power of a microscope.   ■

SECTION ^ B (25 Marks)
Answer ALL Questions
ALL Questions Carry EQUAL Marks (5 x 5 = 25)

1 1 a Explain Miller indices; how will you determine them.
                    OR
     b Explain edge dislocation.

12 a Write notes on intrinsic semiconductor.
              •   OR   •   '
     b Discuss the electric breakdown.

13 a List the properties of Ferrites.   .   -
                    OR
     b Discuss the classical theory of Dia-magnetism.

14 a Write the properties of nano materials.   '   .
              - - OR
     b What are the advantages of magnetic nanoparticles in nanomedicine?

15 a Compare the X-ray radiography and gamma ray radiography.
                    OR
     b Discuss the ultrasonic method of non destructive testing.

SECTION - C (30 Marks)
Answer any THREE Questions
ALL Questions Carry EQUAL Marks (3 x 10 = 30) .

16   Classify crystalline imperfections based on their geometry. Write brief
      note on each.   :

17   Discuss various polarization methods and also explain temperature and
      frequency effects.

18   Discuss the classification of polymers in detail and also explain
      crystallinity of long chain polymers.

19   Explain in details about electronic structure of nano crystals.