

Exam Date & Time: 28-Sep-2020 (10:00 AM - 01:45 PM)



PSG COLLEGE OF ARTS AND SCIENCE

Note: Writing 3hrs: Checking & Inserting Image : 30mins

BSc DEGREE EXAMINATION MAY 2020
(Sixth Semester)

Branch - PHYSICS

MATERIAL SCIENCE [14PHU21]

Marks: 75

Duration: 210 mins.

SECTION A

Answer all the questions.

- 1) Define space lattices. (2)
- 2) Give lattice parameter for hexagonal crystal system? (2)
- 3) What are super conductors? (2)
- 4) What are paramagnetic materials? (2)
- 5) What is mean by hysteresis? (2)
- 6) What are dielectric materials? (2)
- 7) Mention the two types of nano synthesis. (2)
- 8) Define quantum dot. (2)
- 9) What is NDT? (2)
- 10) Define Fatigue. (2)

SECTION B

Answer all the questions.

- 11) What are miller indices? Discuss the procedure to obtain miller indices. (5)
 - a) [OR] Explain screw dislocation. (5)
 - b) (5)
- 12) What are the postulates of free electron theory? (5)

- a)
[OR] Explain intrinsic semiconductors. (5)
b)
- 13) Discuss the classical theory of diamagnetic materials. (5)
- a)
[OR] Discuss the classifications of polymers. (5)
b)
- 14) Explain the Ball milling method. (5)
- a)
[OR] Explain the applications of nano materials in medicine. (5)
b)
- 15) Explain a method to detect surface defects. (5)
- a)
[OR] Explain ultrasonic method of NDT. (5)
b)

SECTION C

Answer 3 out of 5 questions.

- 16) What are surface defects in solid material? Discuss the various types of surface defects. (10)
- 17) Briefly explain the effects of frequency and temperature on polarization of dielectrics. (10)
- 18) Explain in detail the domain theory of ferromagnetic materials. (10)
- 19) Explain physical, mechanical and magnetic properties of nano materials. (10)
- 20) Explain the principle, construction and working of piezoelectric ultrasonic generators. (10)

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