QP CODE: 24000613

24000613

Reg No : .....

Name : .....

B.Sc DEGREE (CBCS) REGULAR / REAPPEARANCE EXAMINATIONS, MARCH 2024

Sixth Semester

CHOICE BASED CORE COURSE - PH6CBT02 - MATERIAL SCIENCE

Common for B.Sc Physics Model I, B.Sc Physics Model II Applied Electronics, B.Sc Physics Model II Computer Applications & B.Sc Physics Model III Electronic Equipment Maintenance

2017 Admission Onwards

16DF97DD

Time: 3 Hours Max. Marks : 80

Part A

*Answer any **ten** questions.*

*Each question carries **2** marks.*

1. How does the response of a material varies with the imposed conditions?
2. What are twin boundaries?
3. What is meant by a plastic deformation?
4. What do you mean by phonons?
5. What is the influence of temperature for the pure metal?
6. What are the factors that affect the photoconductivity of solids?
7. What are the two ways of producing photoluminescence?
8. How numeric display is created using LCD?
9. What are R centres and M centres in solids?
10. What is the effect of size on the optical properties of semiconducting nanoparticles?
11. Mention the vibrational properties of Carbon nanotubes.
12. What are the advantages of Raman Spectroscopy?

(10×2=20)

Part B

*Answer any **six** questions.*

*Each question carries **5** marks.*

13. Discuss on different types of advance materials.

14. Discuss on different tensile properties of solids.

15. What are the differences between dielectric strength and dielectric constant?

16. Discuss on Fick's secod law of diffusion.

17. Explain the principle of working in different display devices.

18. What are called shape memory alloys?

19. What is the binding energy in eV of electrons in magnesium, if the longest-wavelength photon that can eject electrons is 337 nm?

20. Write a note on experimantal set up for formation of metal nano clusters

21. Explain the principle and working of Raman Spectrometer

(6×5=30)

Part C

*Answer any **two** questions.*

*Each question carries **15** marks.*

22. Describe the physical properties of materials.

23. Describe different types of imperfections in solids.

24. What are liquid crystals and what are the different types of liquid crystals?

25. (i) Describe the principle , construction, working and characterization mechanism of Scanning Electron Microscope (ii) What are the advantagees and disadvantages of Scanning Electron Microscope

(2×15=30)