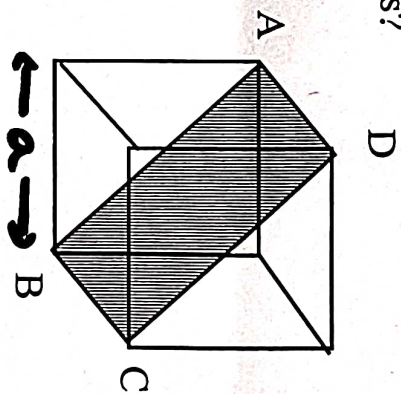


1. Answer any three questions.

2×3=6

- a) Define crystal lattice and unit cell.
- b) Draw a unit cell of a cubic crystal and show in it a (100) and (200) plane.
- c) What is the difference between crystalline and amorphous solids?
- d) Write the Miller indices of the plane ABCD given below:
Write the Miller indices of a plane parallel to X-axis.



3×3=9

- e) What is Meissner effect?

2. Answer any three questions.

- a) A crystalline solid diffracts X-rays. Can the solid also diffract visible light? Explain clearly your answer.
- b) (100) set of planes of a cubic crystal of lattice parameter 3.5 \AA diffracts x-ray of wavelength 1.5 \AA . Find the Bragg's angle for 1st order diffraction.
- c) Giving examples explain clearly the ionic bonding.
- d) Draw the unit cell of BCC lattice. Show the (111) plane in this lattice.
- e) What are Type-I and Type-II superconductors?