

- ordered pattern forming crystalline materials.
32. Relief is a measure of the relative difference in n between a mineral grain and its surroundings
 33. All uniaxial minerals show parallel extinction.
 34. Hexagonal and tetragonal minerals are called biaxial.
 35. Minerals with two special directions such as orthorhombic, monoclinic and triclinic are called uniaxial.
 36. Orthorhombic minerals show parallel extinction
 37. Light which enters the mineral is refracted according to the density of the mineral and the refractive index.
 38. Light entering an isotropic media produces a double refraction.
 39. The incident light is separated into two components, or rays
 40. Isotropic minerals change color as the stage is rotated.
 41. Ray continues in the direction of incidence is called the ordinary ray (e_o)
 42. The refracted ray is called the extraordinary ray (e_e).
 43. Pyroxenes and amphiboles have no cleavages.
 44. Minerals with medium symmetry will also produce a double refraction.
 45. The refractive index varies with orientation in the anisotropic minerals.
 46. Minerals with medium symmetry (birefringent) are called uniaxial.
 47. Minerals with inferior symmetry are called biaxial.
 48. Orthorhombic and monoclinic are anisotropic-Biaxial minerals.
 49. The polarization plane of the ordinary ray is always parallel to the polarization plane of the extraordinary ray.
 50. The electromagnetic wave, which has a magnetic vector, is parallel to its electric vector.

14. Dodecahedron has 8 rhombic faces.
15. Natural light vibrates (oscillates) in all the directions parallel to the direction of propagation.
16. The light exiting from the polarizer has many planes of vibration
17. Isometric system contains several high order fold axes: 3 A_4 or 3 A_2 and 4 A_3 .
18. Mineral is a solid body, formed by natural processes, that has a regular arrangement of atoms which sets limits to its range of chemical composition and gives it a characteristic crystal shape.
19. Quartz crystals form when molten SiO_2 is cooled very slowly or by precipitation from solution.
20. The intensity of the light (amplitude of wave) is affected color filter.
21. Hexagonal crystals have 4 axes and all non-hexagonal crystals have 3 axes
22. Axes are compared by lengths and angles of intersection with each other on the crystal.
23. Pinacoid is an open form with 2 non parallel faces with respect to a mirror plane and A_2 --located at top of crystal.
24. All anisotropic minerals contain one or two special
25. All minerals other than cubic are isotropic.
26. A cube has 6 planes of symmetry
27. When rotation repeats form every 90 degrees, then we have sixfold or hexagonal symmetry.
28. Pleochroism is defined as the changes in absorption color in PPL as rotate the stage of the microscope.
29. Biotite and amphibole are characterized by Pleochroism.
30. Trigonal, tetragonal and hexagonal are considered as inferior symmetry minerals.
31. Very rapid cooling of a liquid allows atoms to arrange themselves into an

Answer (T) for True sentences Or (F) for False sentences: (One mark each)

1. Quartz has high relief while garnet has low relief.
2. The anisotropic materials are called "monorefringent".
3. Microscopic study is the cheapest and fastest method for identifying minerals.
4. Normal light is not polarized and vibrates in all possible directions.
5. Dipyramid is an open form with 3, 4, 6, 8 or 12 nonparallel faces meeting at the top of a crystal
6. Isotropic means that any physical property of the material is the same at any point and in any direction through the material.
7. Anisotropic (in a general sense) means that the properties of the material may vary continuously with changing direction (orientation) of observation.
8. Garnet is an anisotropic mineral.
9. The rhombic dipyramid can only occur in the ditrigonal dipyramidal class
10. Some minerals are "more anisotropic" than others
11. The isotropy-anisotropy is related to the symmetry of crystals.
12. The symmetry of minerals crystallized in the cubic system have $a=b=c$ and $\alpha=\beta=\gamma=90^\circ$
13. Non-crystalline materials (such as glass, liquids, and gasses) have not geometrical arrangement of the atoms have not an internal lattice.