

Chemistry speciality, II course
EXAM QUESTIONS ON OPTICS-2022

1. The nature of light. Newton's and Huygens hypotheses
2. Explanation propagation of light by Newton
3. Explanation propagation of light by Huygens
4. Electromagnetic theory of light. Maxwell's equations
5. Energy of electromagnetic wave. Poynting's vector.
6. Phase and group velocity of light
7. Coherence. Interference of light waves
8. The fringe width of interference pattern.
9. Ways of obtaining coherent sources. By division of amplitude.
10. Ways of obtaining coherent sources. By division of wave front.
11. Newton rings
12. Diffraction of light. Huygens-Fresnel principle
13. Fresnel zone method
14. Fraunhofer diffraction
15. One slit diffraction
16. Double and more slits diffraction
17. Diffraction grating
18. Geometrical optics
19. Fermat's principle
20. Propagation light in homogenous media according to the Fermat's principle
21. Refraction law by Fermat's principle
22. Reflection law by Fermat's principle
23. Types of lenses and construction of images
24. Lenses. Thin lens equation
25. Total internal reflection and its applications
26. Light dispersion.
27. Normal and anomalous dispersion
28. Polarization of light
29. Polarized and unpolarized light. Malus's law
30. Polarization in reflection and refraction. Brewster's law