IMPORTANT THEORY QUESTIONS

Refraction and Dispersion of Light Through A Prism

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Sr No	Question	Marks	Keyword(s)
1	What is angle of deviation for a prism?	1	Define
2	A monochromatic light falls on a prism. Draw a neat ray diagram that shows the incident ray, refracted ray, emergent ray and normals.	2	Diagram
3	Write the relation between the angle of emergence and the angle of deviation of a light ray passing through a prism.	1	Formula
4	What happens when a ray of light passes through a prism?	1	Dispersion
5	State the factors on which the deviation produced by a prism depends.	2	Deviation
6	A monochromatic ray of light passes through a prism (angle A). Show that in the position of minimum deviation, the angles of incidence and refraction are given by: $i = (A + \delta)/2$ and $r = A/2$	3	Derive
7	Draw a graph showing the variation of the angle of deviation with the angle of incidence. Derive an expression for the refractive index of the material of the prism in terms of its refracting angle and the angle of minimum deviation.	3	Derive
8	Define dispersive power of the material of a prism.	1	Define
9	Define angular dispersion.	1	Define
10	How does the speed of light in glass change (i) on increasing the wavelength of light, (ii) on increasing the intensity of light.	2	Refraction
11	What is scattering of light? Write Rayleigh's criterion for scattering of light.	2	Rayleigh's
12	Name two phenomena that can be explained by scattering of light.	2	Scattering
13	Why does the sun appear reddish at sunrise and at sunset?	3	Scattering
14	Why is red light used for danger signals?	1	Scattering
15	Explain the formation of the primary and secondary rainbows. Draw a neat diagram to explain the rainbow phenomenon.		Rainbow
16	Define dispersive power of an optical medium. Does dispersive power depend upon the refractive angle of the prism?	2	Dispersive power
17	Is the refractive index of glass the same for all colors of light? Explain.	1	RI
18	Define the term 'angle of minimum deviation'.	1	Min. deviation
19	What is a thin prism? Obtain an expression for the deviation produced by a thin prism.	2	Thin prism.
20	Draw a neat diagram that shows the dispersion of white light into its constituent colors; mark the angles of deviation for red and violet light.	2	Diagram

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