

1. In a Plane transmission grating the angle of diffraction for second order principal maximum for the wavelength 5×10^{-5} cm is 30° . Calculate the number of lines/cm on the grating surface.

2. Calculate the highest order spectrum that can be obtained by monochromatic light of wavelength 6000 \AA by a grating with 6000 lines/cm.

3. A diffraction grating used at normal incidence gives a line 5400 \AA in a certain order superimposed on another line 4050 \AA of the next higher order. If the angle of diffraction is 30° , how many lines/cm are there on grating?

4. In an experiment with grating, third order wavelength coincides with the four order spectral line of wavelength 4992 Å. Calculate the value of the wavelength.

5. A grating has 620 rulings/mm and is 0.5mm wide. What is the smallest wavelength interval that can be resolved in the third order at $\lambda = 481$ nm?

6. Find the maximum resolving power of a grating 2 cm with 6000 lines/cm illuminated by a light of wavelength 5890 Å.