Q8. Calculate the maximum order of diffraction maxima seen from plane transmission grating with 2500 lines per inch if light of wavelength 6900 A falls normally on it.

Given:- N=$\frac{1}{a+b} = 2500$lines/inch = 2500x 2.52 x 10^{-2} = 63 lines/m

λ= 6900A=6900x10^{-10} m

Formula:- $(a + b)\sin\theta = n\lambda$

Solution:- for n= n_{max} , sin θ =1

$$n_{max} = \frac{a+b}{\lambda} = 2.3$$

Ans:- Maximum order of diffraction is 2