**Q4.** The visible spectrum ranges from 4000A0 to 7000A0 . Find the angular breath of the first order visible spectrum produced by a plane grating having 6000 lines/cm when light is incident normally on the grating.

**Given:-** l1 = 4000A=4×10-5 cm l2= 7000A=7x10-5 cm n=1 a+b=1/6000lines per cm

**Formula:-**

**Solution:-** (a +b)sin 1=1

1= = sin-1(4x10-5x 6000) = 13.88®

(a +b)sin2=2

2= = sin-1(7x10-5x 6000) = 24.83®

2- 1 =24.83 - 13.88 = 10.95®

**Ans :- The Angular separation = 10.95®**