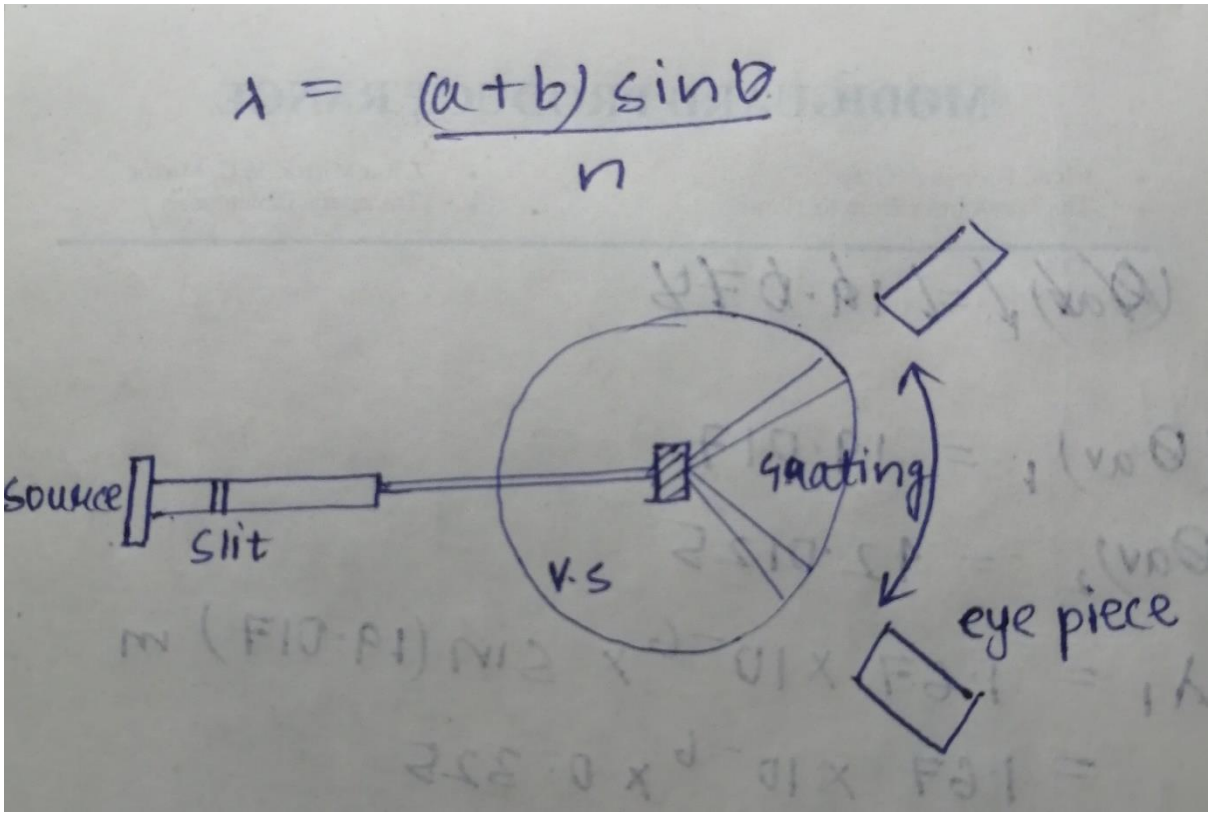
EXPERIMENT-4

AIM: To find the wavelength of mercury green light by diffraction grating using spectrometer.

APPARATUS: Spectrometer, diffraction grating element and mercury vapor lamp.

THEORY:



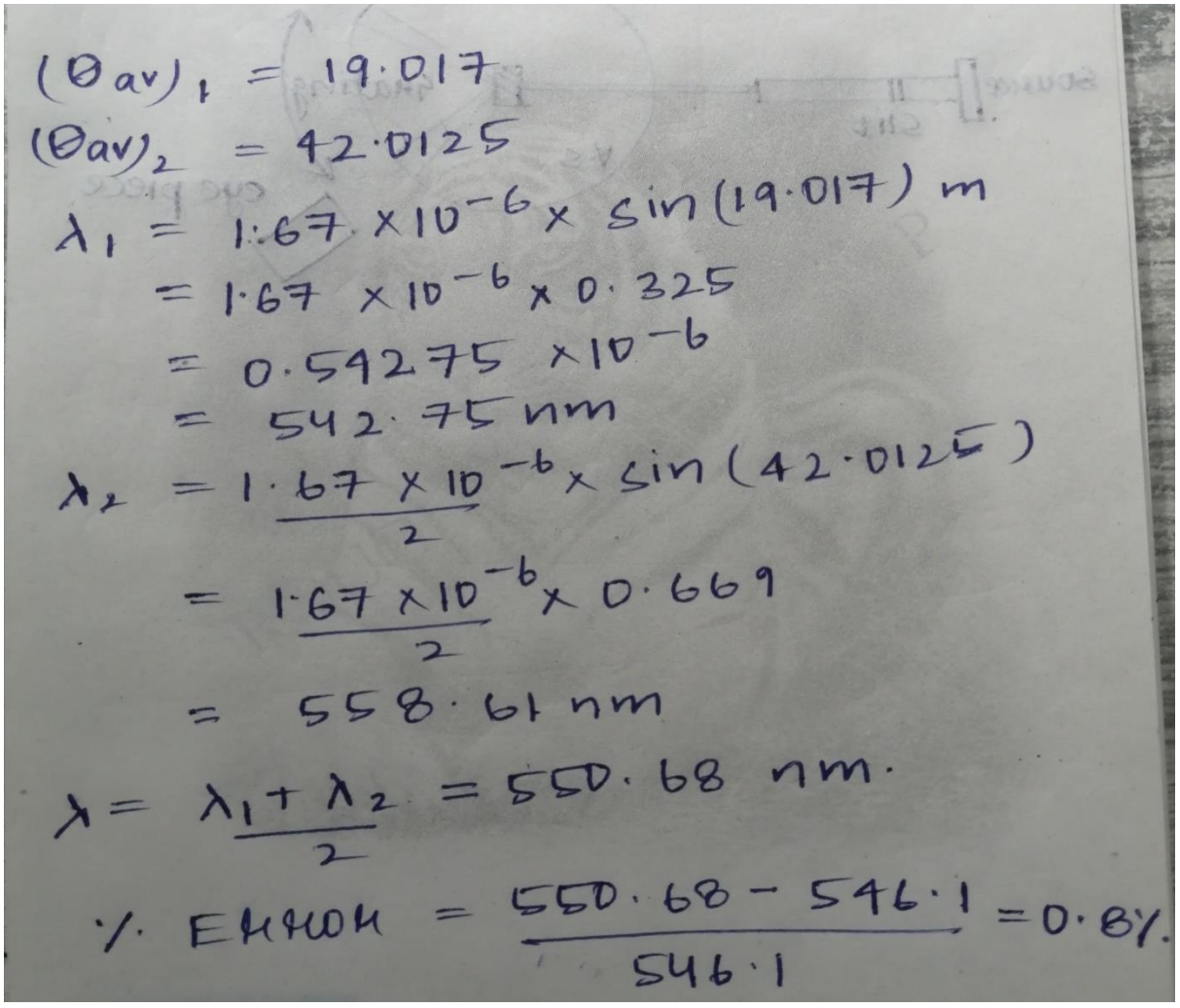
OBSERVATION: Least count=1/120 degrees

Grating element (a+b) = 1/600 mm=1.67X10^{-6}m

Wavelength of mercury green light actual=546.1nm

S. No	Order of diffraction(n)	Left Spectrum			Right Spectrum		
		MSR	VSR	Total	MSR	VSR	Total
1	1	341	5	341.041	19	9	19.075
2	2	315	3	315.025	39	6	39.050

CALCULATION:



RESULT: Wavelength of mercury green light as determined from experiment is 550.68nm.

Percentage error is 0.8%.

PRECAUTIONS: 1) The mechanical adjustment of the telescope should be carried.

2) The slit used must be as narrow as possible.

3) Use reading lens while recording the vernier scales.

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