

King Fahd University of Petroleum and Minerals
Department of Physics

Name:
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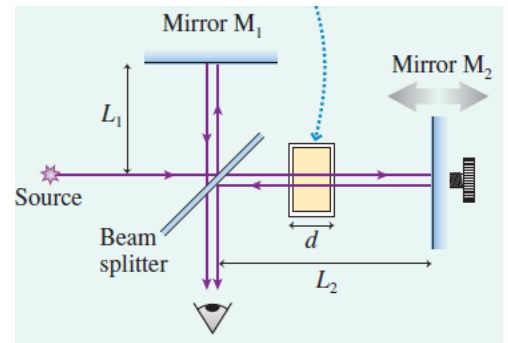
PHYS 205 prelab Quiz-10/28/2020
Due time 12:30 pm

Show detailed solution using **your hand writing only on white paper**, typing or printing will not be accepted. Then, take clear image of your answer and then send it to my email

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Q: A Michelson interferometer uses a helium-neon laser with wavelength of 632.8 nm. In one arm, the light passes through a gas cell of length d . Initially the cell is evacuated, and the interferometer is adjusted so that the central spot is a bright fringe. The cell is then slowly filled to atmospheric pressure with a gas (Gas 1) where 43 fringes were counted to move past a reference line on the observed fringes. Then The cell was again evacuated and another gas (Gas 2) was allowed to slowly fill the cell to atmospheric pressure where 68 fringes were counted to move past the same reference line.

- (a) Calculate the index of refraction of Gas 1 up to 6 significant figures?



- (b) Calculate index of refraction of Gas 2 up to 6 significant figures?