

Name _____ Instructor name _____

You must show and explain all work neat and organized to receive credit. Please show each step for calculations. YOU MUST TURN IN THIS SHEET to have your assignment graded.

1. (a) State the Huygens-Fresnel principle. (b) What device is used to collect the data in this experiment? (c) Plane waves are incident on a slit whose width is adjustable. The slit starts one wavelength wide and increases to a width of 1000 wavelengths. Describe the change in the diffraction pattern qualitatively. (10 pts)

2. (a) What is Young's interference? (b) How should the number of observable interference fringes change as the distance between the two slits increases? Assume that the slit width remains unchanged.

(c) How should the number of observable interference fringes change as the slit width decreases? Assume that the slit separation remains unchanged. (d) What is a missing fringe? (10 pts)