

- 1- Show in a diagram the difference between chromatic and spherical aberration of a lens.
- 2- in fresnel biprism, the distance between the virtual sources (2mm) find the wavelength of the light source if the distance between the source and screen is 65 cm and the fringe width is 0.04 mm.
- 3- A diffraction grating is used to determine the wavelength of light . in using the same grating. Illuminated by red light compared to blue light. The angle for first-order maxima
 - a-Is equal for both red and blue light.
 - b- For red light is greater than blue.
 - c-For red light is smaller than blue.
 - d-Is independent of the wavelength of light.
- 4- The type of light can be used to study of chromatic aberration is -----
- 5- What are the common methods used in producing the polarized beam of light
- 6- Write application of Michelson interferometer.
- 7- Estimate the limiting angle of resolution for the human eye, assuming its resolution is limited only by diffraction. taking $\lambda = 500 \text{ nm}$ and $D = 2 \text{ mm}$:
- 8- The pupil of the eye reduces in size under which condition? D
 1. eye is focused on a distant object
 2. object viewed is dimly illuminated
 3. eye is focused on a nearby object
 4. object viewed is well illuminated.
- 9- Write applications of the Michelson interferometer.
- 10- define in a word the refractive index, what is the relation between refractive index and wavelength.
- 11- Write the condition of constructive and destructive interference of thin film
- 12- Write about the inverse square law of light
- 13- What is the function of the polarizer plate.
- 14- Show by a diagram Negative crystal, Chromatic aberration of a lens

- 15- The ability of an instrument, such as a telescope, to reveal the separateness of closely spaced images is its _____.
- 16- A(n) _____ has parallel slits that diffract light and form an interference pattern.
- 17- Light of only one wavelength is _____.
- 18- If the material has an index of refraction of 1.5 what is the speed of light through it?
- 19- When light passes through a single slit, which of the following appears?
- A. a series of equally bright bands C. a bright central band, with dimmer bands to the sides
- B. a dark central band, with bright bands to the sides D. a single wide bright band
- 20- Explain why Newton's ring is circular.
- 21- What is the difference between the prism and grating spectrum
- 22- Mention name of methods produce polarizer light.