Department of physics/

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Question Bank -Part-two
2022-2023

Q1) Write the equation of the following and define each each Symbol of each equation?

1. **The condition of constructive and destructive interference of Michelson interferometer:**

   Constructive

   interference……………………………………………………………………………….

   Destructive
   interference………………………………………………………………………………..

2. **Propagation of error for: Diffraction grating is used to determine the**

   wave length of unknown source of light

   ………………………………………………………………………………………………
   ..

3. **Dispersion power (w) of the glass of lens from in Chromatic aberration:**

   ………………………………………………………………………………………..

4. **Malus' Law**
   ………………………………………………………………………………………..

5. **The diameter of the lens in experimental (Resolving Power of Optical Instruments)**

   ……………………………………………………………………………………….

6. **Cauchy's formula**
   …………………………………………………………………………………………

Q3/ Explain Each Of following statements using the diagram

1-The ability to resolve two point sources depends on the wavelength of the light (……..)

2- In a Fresnel's biprism experiment, the two coherent sources are obtained by refraction(……)

Q4) Answer the following   questions

1. **Different between refraction and diffraction**

……………………………………………………………………………………………………

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2. **Conditions for interference**

………………………………………………………………………………………………

3. **Difference between Coherent and Incoherent light**

………………………………………………………………………………………………
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………………………………………………………………………………………………
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4. **Define Diffraction? Mention the two types of diffraction?**

………………………………………………………………………………………

Q5) Find dispersion power of the lens (only for one value of S).

Q6)
When electro magnetic disturbances propagate in a medium, the following remains same
1. velocity   2. wavelength   3. frequency 4. all the above

Q7) Qb3/Write three types of random error.

Q8)calculate wave length of He-Ne laser using Michelson's interferometer if c.f=9.8(for 20 firings)

Q9)write the name of device use to calculate radius of curvature ? how can calculate of radius of curvature write the law and define each symbol?
Q10) Write the dark and bright condition of newton ring experiment?

Q11)Fix the polarizer at zero degree and then rotate analyzer in 5o and record the current (I) to calculate
I0 use mulus low.
Q12) Why it is easier to create interference fringes with laser light than with Na-light?

Q13)
The spacing between Newton's rings decreases rapidly as the diameter of the rings increases.
Explain qualitatively why this occurs.

Q14) for light wave the direction of polarisation is the direction
1. of vibration of magnetic field
2. of vibration of electric field
3. of prorogation of wave
4. normal to electric and magnetic field

Q15/(T or F) **2- In a Fresnel's biprism experiment, the two coherent sources are**

obtained by refraction(......)

1-The ability to resolve two point sources depends on the wavelength of the light

Q16/ Explain Each Of following statements using the diagram

1- The chromatic aberration? Of three wave length (wave length =450 , 550 and 600 nm)
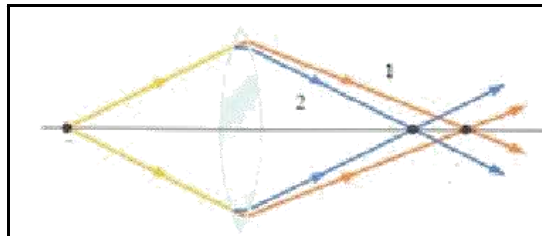

Q17) Answer the following questions
Q18)/state maul's law

Q19)) calculate the radius of curvature of lens using Newton's ring for (12 fringes).

Q20) Look to this diagram and answer the following questions?

1-what is the representation of this diagram?

2- Show the important points of diagram and write down the names?

Good Luck
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