

PHYSICAL OPTICS

Introduction to theories of light and speed of light : ONE MARK QUESTIONS

1. Who proposed Corpuscular theory of light?
2. Who proposed Wave theory of light?
3. Who proposed electro magnetic theory of light?
4. Who proposed Quantum theory of light?
5. Mention any one draw back or failure of Corpuscular theory of light.
6. Mention any one draw back or failure of Wave theory of light.
7. Mention any one draw back or failure of Electro magnetic theory of light.
8. Mention any one draw back or failure of Quantum theory of light.
9. Name the physicist who experimentally detected electromagnetic waves.
10. What is meant by a wave front?
11. What is the rest mass of photon?
12. What is the value of speed of light obtained in Michelson's rotating mirror experiment?
13. Why Michelson's rotating mirror is regarded as 'null method'?
14. Give the formula for speed of light in Michelson's experiment when rotating mirror with 12 faces is used.

TWO MARK QUESTIONS

1. Write any two theories that support wave nature of light.
2. According to Huygen's waves theory, what are the characteristic of 'ether'.
3. Draw a neat labeled diagram of Hertz's experiment.
4. Mention any two importance of speed of light.

INTERFERENCE

ONE MARK QUESTIONS

1. What is interference of light?
2. What are coherent sources?
3. What is constructive interference?
4. What is destructive interference?
5. What are interference fringes?
6. What are Newton's rings?
7. Give an example for interference due to thin film.
8. Define fringe width.

TWO MARK QUESTION

1. Write condition for constructive and destructive interference in terms of path difference.
2. Write condition for constructive and destructive interference in terms of phase difference.
3. Give the expression for fringe width in the Young's double slit experiment and explain the symbols.
4. Write any two conditions for obtaining sustained interference pattern.
5. Draw a neat sketch of the Newton's rings apparatus.

FIVE MARK QUESTIONS

1. Give the theory of interference.
2. Obtain the expression for fringe width in case of Young's double slit experiment.

DIFFRACTION

ONE MARK QUESTIONS

1. What is diffraction of light?
2. What is the resolving power of an optical instrument?
4. Define limit of resolution of a telescope
5. Define limit of resolution of a microscope
5. How does the resolving power of an optical instrument depends on its limit of resolution ?
6. How does resolving power of a telescope can be increased?

TWO MARK QUESTIONS

1. Write the expression for resolving power of telescope and explain the symbols.
2. Write the expression for resolving power of microscope and explain the symbols.

FOUR / FIVE MARK QUESTIONS

1. What is Fraunhofer's diffraction ? Describe an experiment to produce Fraunhofer's diffraction at a single slit.
2. Distinguish between Fresnel's and Fraunhofer's diffraction.
3. Explain Rayleigh's criteria with the help of neat diagrams.

POLARISATION

ONE MARK QUESTIONS

1. What is polarization ?
2. What is meant by plane of polarization?
3. What is meant by plane of vibration?
4. State Brewster's law.
5. What is optical activity ?
6. Define specific rotation of an optically active solution.
7. Define specific rotation of an optically active solid.

TWO MARK QUESTIONS

1. Write any two difference between e-ray and O-ray.
2. What are H and K – polaroids?
3. Write any two applications of polaroids.
4. What are circularly and elliptically polarized light?
5. Mention any two methods of producing plane polarized light.
6. Represent unpolarised and plane polarized light diagrammatically.

FIVE MARK QUESTIONS

1. Define Brewster's angle. Show that the reflected and refracted rays are perpendicular to each other when the angle of incidence is equal to the Brewster's angle.