Avinashilingam Institute for Home Science and Higher Education for Women

Deemed to be University Estd. u/s 3 of UGC Act 1956, Category 'A' by MHRD (now MoE)
Re-accredited with 'A++' Grade by NAAC. CGPA 3.65/4, Category I by UGC
Coimbatore - 641 043, Tamil Nadu, India

Bachelor's Degree Arrear Examination – May 2025
I Semester

Batch : 2024 **Time: 3 Hours**
Major : Optometry **Max. Marks: 100**

22BOPC03 Geometric Optics - I

Course Outcomes:
CO1 : To understand the nature and properties of light.
CO2 : To learns the refractive properties properties of light.
CO3 : To gain knowledge on lens and vergence.
CO4 : To comprehend about mirrors, reflectivity and nodal planes.
CO5 : To elucidate the optics of prisms.

Part A **10 x 1= 10**
Choose the Correct Answer

1. What is the velocity of light in a diamond if the refractive index of diamond with respect to vacuum CO2K1
   a. 1.2×10^8 m/s b. 5×10^8 m/s
   c. 1.2×10^{10} m/s d. 2.5×10^8 m/s
2. Mirage is an example of CO1K3
   a. Reflection of light b. Refraction of light
   c. Total internal reflection of light d. Scattering of light
3. The visible light has a wavelength of range CO1K2
   a.100-200nm b. 250-300nm
   c. 300-350nm d. 400-700nm
4. Separation of white light into different colors is known as CO3K1
   a. Reflection b. Refraction
   c. Dispersion d. Total internal reflection
5. The formula to find the refractive index is CO3K2
   a. n=c-v b. n=2cv
   c. n=c/v d. n=c+v
6. If the angle of incidence becomes larger than critical angle then phenomenon of: CO2K1
   a. Reflection occurs b. Refraction occurs
   c. Total internal reflection occurs d. All the above
7. Lens with a long focal length is: CO3K1
   a. Thick b. Thin
   c. Not strongly curved d. Both b and c
8. Mirror formula is: CO4K2
   a. 1/f +1/p +1/q b. 1/f = 1/p + 1/q
   c. 1/p +1/q d. 1/p = 1/f x 1/q
9. An eye is a refracting system containing a CO5K3
   a. Diverging lens b.Converging lens
   c. Mirror d. Biconcave lens
10. In convex mirror size of image is always: CO4K3
   a. Larger than object b. Equal to object
   c. smaller than object d. Depends on object plane

Part B **5 x 6 = 30**

Answer ALL questions

Each answer should not exceed 400 words or two pages

11.a. Write a note on cardinal position of the lens.	CO4K2
(or)	
11.b. Write a short notes on concave and convex lens.	CO3K2
12.a. Write a note on spherical & chromatic aberration in lens.	CO3K1
(or)	
12.a. Write anote on prism and application of prism.	CO5K2
13.a. Define mirror and its types with neat diagram.	CO4K3
(or)	
13.b. Write a short note on Prentice rule.	CO5K2
14.a. State laws of Reflection with neat diagram.	CO1K1
(or)	
14.b. Write a note on reversibility of light.	CO1K2
15.a. State laws of Refraction with neat diagram.	CO2K2
(or)	
15.b. Write a note on optical path length.	CO2K1

Part C **5 x 12 = 60**

Answer ALL questions

Each answer should not exceed 800 words or four pages

16. a. Explain in detail about image formation by convex lens and concave lens.	CO3K2
(or)	
16. b. Differentiate Galilean and Keplerian telescope.	CO3K1
17.a. Explain in detail about image formation by concave mirror.	CO3K2
(or)	
17.b. Enumerate briefly about Prism.	CO5K1
18.a. Elaborate Aberrations on optics.	CO5K1
(or)	
18.b. Explain the difference between concave and convex mirror.	CO4K2
19.a. Explain nature of light in detail.	CO1K3
(or)	
19.b. Define vergence, object vergence with neat diagram.	CO1K2
20.a. State snell's law, fermat's and huygen's principle in detail.	CO2K2
(or)	
20.b. Define lens and explain the different types of lens shapes with neat diagram.	CO5K1

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