SHRI RAMSWAROOP MEMORIAL UNIVERSITY

End Semester Examination (2021-22)-Odd Semester

B.Sc. (Hons.) – I Year (I Sem)	
Course Name: Optics	**Code: BPH1003**
Time: 02 Hours	**Max Marks: 60**

University Roll No.															
(To be filled by the Student)															

Note: Please read instructions carefully:

a) *The question paper has 03 sections and it is compulsory to attempt all sections.*

b) *All questions of Section A are compulsory; questions in Section B and C contain choice.*

Section A: Very Short Answer Type Questions **Attempt all the questions.**		**BL**	**CLO**	**Marks (10)**
1.	State the Fermat's principle of least time.	BL1	CLO1	02
2.	Why does light wave often represent by **E** wave?	BL2	CLO2	02
3.	How was Fresnel solved the difficulty associated with backward travelling of secondary waves?	BL2	CLO3	02
4.	How will you define circularly polarized light?	BL2	CLO4	02
5.	Write an expression for the thickness of quarter wave plate.	BL1	CLO4	02
Section B: Short Answer Type Questions **Attempt any 03 out of 05 questions.**		**BL**	**CLO**	**Marks (30)**
1.	Explain the image construction by coaxial optical system using cardinal points.	BL4	CLO1	10
2.	State and explain the conditions of sustained and distinct fringe pattern.	BL4	CLO2	10
3.	Show that the area of each half period zone is equal.	BL3	CLO3	10
4.	Show that when light is incident on a transparent material at the Brewster angle, the reflected and refracted rays are at right angle.	BL4	CLO4	10
5.	Two thin convex lenses of focal lengths 30 cm and 10 cm are separated by a distance of 25 cm in air Calculate the positions of the first and second principal points.	BL3	CLO1	10
Section C: Long Answer Type Questions/Case Study **Attempt any 01 out of 04 questions.**		**BL**	**CLO**	**Marks (20)**
1.	Show that the equivalent focal length of two thin lenses of focal length f_1 and f_2 separated by a distance d is $f = \frac{f_1 f_1}{f_1 + f_2 - d}$.	BL4	CLO1	20
2.	What is the plane parallel thin film? Establish the condition of brightness and darkness if the interference pattern is produced by the reflected light by the plane parallel thin film.	BL4	CLO2	20
3.	Discuss the Fraunhofer diffraction through single slit	BL4	CLO3	20
4.	Explain the principle, construction and working of Nicol prism.	BL4	CLO4	20
