BS- 2110
OPTICS-II
SEM-III DEC-2019

10384/NH

M:MARKS :30

TIME : 3 HOURS

NOTE: The candidate are required to attempt two question each from Section A & B Section C will be compulsory . Attempt any five from Section C.

SECTION A

1. Explain how Newton Rings are formed for reflected system? How wavelength of a monochromatic source can be determined with Newton rings? 5
2. Write principle, construction and working of Fabry Perot Interferometer. 5
3. What do you mean by thin film interference and discuss the role of interference in anti-reflection and high reflection dielectric coatings. 5
4. Write principle, construction and working of Michelson's Interferometer. 5

SECTION B

5. What is a Plane Diffraction grating? Find the linear and angular dispersive power of diffraction grating. 5
6. Discuss in detail Huygen's theory of double refraction. 5
7. What is diffraction? Discuss Fraunhoffer diffraction for a rectangular and circular slit. 5
8. What is meant by resolving power? Find resolving power of telescope and diffraction grating. 5

SECTION C

9. Attempt any five questions: 5 x 2 = 10

I. What is double refraction and its cause?
II. What is a Zone plate and what is its significance?
III. Write Rayleigh's criterion of resolution.
IV. Why an extended source is required for obtaining interference by division of amplitude method?
V. State Malu's Law. What fraction of light will be emerged for $\theta = 30°$?
VI. What is the difference between single slit and double slit Fraunhoffer Diffraction pattern?
VII. What do you mean by coherence length, coherence time and coherence area?