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**Paper Code :DSC-204**  
**Roll No.**

**B.Sc. (PCM)-12**  
**2<sup>st</sup> Year Examination, Academic Batch 2016-17**  
**Physics-IV (Optics)**

*Time : 3 Hours ]*

*[ Max. Marks : 100*

*Note. Attempt any **five** questions. Each questions carry equal marks.*

1. Derive expression for the equivalent focal length and positions of the principal points and focal points of a coaxial system of two convex thin lenses separated by a distance 'd'.

Q. 2 Describe the Rayleigh limit resolution. Deduce an expression for resolving power of a plane transmission grating.

Q. 3 What do you mean by optical rotation? Give an outline of Fresnel's theory of optical rotation.

Q. 4 How will you determine the difference in the wavelength of two D-lines of sodium light by Michelson's interferometer.

Q. 5 Describe Fraunhofer diffraction due to a single slit and deduce the position of maxima and minima and find their relative intensities.

Q. 6 What is spherical aberration? How can this defect be minimized in ordinary lenses.

Q. 7 Describe the construction and action of Nicol's prism,

Q. 8 Explain Fraunhofer diffraction due to a single slit and deduce the position of maxima and minima and find their relative intensities.