

Major Paper II – Analytical Geometry and Trigonometry

Unit I

Solving Trigonometric equations – principal values and general solutions – inverse trigonometric functions and related problems. Expansions of $\cos^n \theta$, $\sin^n \theta$ and $\tan^n \theta$, $\cos^n \theta$ and $\sin^n \theta$ for numerical values of n – series for $\cos \theta$, $\sin \theta$ and $\tan \theta$ – applications to evaluate limit (only simple problems)

Unit II

Hyperbolic functions – relations between trigonometric and hyperbolic functions – related problems, principal and general values of logarithms – separation into real and imaginary parts.

Unit III

Polar equation of straight line, circle and conics, polar equations of tangent and normal to conics and circle.

Unit IV

Preliminaries – Direction cosine and ratios of a line – standard equation to a plane – equation of straight line – shortcut distance between two straight lines – equation to the line of shortest distance

Unit V

Sphere – suitable properties and problems – general second degree equation to a cone

Text Book:

Analytical Geometry by T.K. Manickavasagam Pillai