PS 1205 ADVANCED MATHEMATICS

1. Differential equations: Revision of integral calculus, definition and formation of differential equations, equations of first order and first degree, variable separable, homogeneous and linear differential equations and equations reducible to such types, linear differential equations of order greater than one with constant coefficients, complementary function and particular integral, simultaneous linear differential equations, pharmaceutical applications.
2. Laplace transforms: Definition, transforms of elementary functions, properties of linearity and shifting, inverse Laplace transforms, transforms of derivatives, solution of ordinary and simultaneous differential equations.
3. Biometrics: Significant digits bend rounding of numbers, data collection, random and non-random sampling methods, sample size, data organization, diagrammatic representation of data, bar, pie, 2-D and 3- D diagrams, measures of central tendency, measures of dispersion, Standard Deviation and standard error of means, coefficient of variation, confidence (fiducial) limits, probability and events, Bayes' theorem, probability theorems, probability distributions, elements of binomial and Poisson distribution, normal Distribution curve & properties, kurtosis and skewness, correlation and regression analysis, method of least squares, statistical inference, Student's and paired t-test, F-test and elements of ANOVA, applications of statistical concepts in Pharmaceutical Sciences.

Recommended Books:

1. Daniel W W, Biostatistics. A Foundation for Analysis in Health Sciences, John Wiley, NY.
2. Grewal B S, Higher Engineering Mathematics, Khanna Publishers, New Delhi.
3. Gupta S P, Statistical Methods, Sultan Chand & Co., New Delhi.
4. Schaum, Differential Equations, McGraw- Hill Singapore.