SECTION-A

UNIT-I

Order and Degree of a differential equation. Differential equations of first order and first degree, variables separable, homogeneous equations. Linear equations and equations reducible to linear form. Exact differential equations and equations reducible to exact forms.

UNIT-II

Differential equations of first order but not of first degree. Solvable for x, y, p Clairaut’s form, singular solutions. Geometrical meaning of a differential equation, orthogonal trajectories.

UNIT-III


SECTION-B

UNIT-IV


UNIT-V


UNIT-VI

NOTE:

1. The syllabus is divided into 2 sections comprising three units each. Total seven questions would be set. One question would be compulsory that would comprise all the units. Remaining six questions will be set from both the sections taking three questions from each section. Students need to attempt at least two questions from each section. A student has to attempt five questions in all.

2. Use of Ordinary calculator is allowed.

Text Books:-


Books recommended for reference :-

Common for B Sc (General, Electronics, Computer Science and Information Technology)

SECTION-A

UNIT – I
The set of real numbers, Intervals, Definition of a sequence, Theorems on limit of sequence, bounded and monotonic sequences, nested interval theorem, Cauchy’s sequence, and Cauchy’s convergence criterion.

UNIT – II
Convergence of series of non-negative terms, their various tests (Comparison, D’Alembert’s ratio, Cauchy’s $n^{th}$ root, Raabe’s, Gauss, Logarithmic, De-Morgan) for convergence.

UNIT – III
Alternating series, Leibnitz’s test, Series of arbitrary terms, absolute and conditional Convergence, Abel’s and Dirichlet’s tests.

SECTION-B

UNIT-IV

UNIT-V

UNIT –VI
Taylor’s theorem with various forms of remainders. Darboux’s intermediate value theorem for derivatives. Darboux sums and their properties.
NOTE:

1. The syllabus is divided into 2 sections comprising three units each. Total seven questions would be set. One question would be compulsory that would comprise all the units. Remaining six questions will be set from both the sections taking three questions from each section. Students need to attempt at least two questions from each section. A student has to attempt five questions in all.

2. Use of Ordinary calculator is allowed.

Text Books:-


Books recommended for reference :-


3. Hari Kishan, Real Analysis, Pragati Prakashan Meerut.

4. J.N. Sharma & A.R. Vasistha, Mathematical Analysis, Krishna Prakashan Mandir, Meerut