

**BM-361**

**(Semester-VI)**

**Real and Complex Analysis**

External Marks: 40/27

Internal Marks: 10/6

Time: 3 Hours

**Note: Paper setter will set nine questions in all, selecting two questions from each section and one Compulsory question consisting of five parts distributed over all four sections. Candidates are required To attempt five questions, selecting at least one question from each section and the compulsory Question.**

**Section-I**

Jacobians, Beta and Gamma functions, Double and Triple integrals, Dirichlet's integrals, change of order of integration in double integrals.

**Section-II**

Fourier's series: Fourier expansion of piecewise monotonic functions, Properties of Fourier Co-efficients, Dirichlet's conditions, Parseval's identity for Fourier series, Fourier series for even and odd functions, Half range series, Change of Intervals.

**Section-III**

Extended Complex Plane, Stereographic projection of complex numbers, continuity and differentiability of complex functions, Analytic functions, Cauchy-Riemann equations. Harmonic functions.

**Section-IV**

Mappings by elementary functions: Translation, rotation, Magnification and Inversion. Conformal Mappings, Mobius transformations. Fixed points, Cross ratio, Inverse Points and critical mappings..

## REFERENCES

- . T.M. Apostol: Mathematical Analysis, Narosa Publishing House, New Delhi, 1985
- R.R. Goldberg : Real analysis, Oxford & IBH publishing Co., New Delhi, 1970
- D. Somasundaram and B. Choudhary : A First Course in Mathematical, Analysis, Narosa Publishing House, New Delhi, 1997
- Shanti Narayan : A Course of Mathematical Analysis, S. Chand & Co., New Delhi
- R.V. Churchill & J.W. Brown: Complex Variables and Applications, 5th Edition, McGraw-Hill, New York, 1990
- Shanti Narayan : Theory of Functions of a Complex Variable, S. Chand & Co., New Delhi.N.  
Herstein : Topics in Algebra, Wiley Eastern Ltd., New Delhi, 1975