

**RANI DURGAVATI UNIVERSITY, JABALPUR**

**SYLLABUS OF M.A./M.Sc. MATHEMATICS SEMESTER SYSTEM**

**Semester-I (Session 2016-17 and onwards)**

**Syllabus opted by the board of studies in Mathematics, R. D. University in the meeting held on 30-04-2016.**

Session	Course	Title of papers	Max. Marks Theory/CCE	Mini. Passing Marks Theory/CCE	Total Marks
First	Paper-I	Advanced Abstract Algebra-I	35/15	12/05	300
	Paper-II	Complex Analysis-I	35/15	12/05	
	Paper-III	Functional Analysis	35/15	12/05	
	Paper-IV	Real Analysis	35/15	12/05	
	Paper-V	Topology	35/15	12/05	
		Two Seminars and Attendance	50 = 40+10		

**Note:**

- The Seminar is conducted by a board of at least two examiners. In two seminars 40 marks is allocated. Each seminar is of 20 marks.
- In attendance 10 marks is allocated as per ordinance No. 79 of R.D. University Jabalpur.
- The students, whose attendance is less as per ordinance No. 79 of R.D. University Jabalpur, will not allow to appear in the examination at the close of semester and he/she would be declared having failed in that semester.

M. Dhoke  
30.4.16  
H. K. ...  
30/4/2016

M. P. ...  
30.4.2016  
J. ...  
30/04/2016  
D. ...

**M.A./M.Sc. (Mathematics) First Semester**  
**Paper I: ADVANCED ABSTRACT ALGEBRA - I**

Max. Marks: 35  
Min. Pass. Marks: 12

**Unit-I:** Another Counting Principle, Conjugacy relation, Normalizer, Class Equation, Cauchy theorem, Sylow's theorems, Double coset, Second & Third part of Sylow's theorem, Application of Sylow's theorems in finite groups.

**Unit-II:** Series of Groups: Normal and Subnormal series, Composition series, Zassenhaus lemma, Schreier refinement theorem, Jordan Holder theorem.

**Unit-III:** Solvable Groups and its properties, Commutator subgroup, Nilpotent Groups and its properties..

**Unit-IV:** Fields: Extension field, Finite extension, Algebraic element, Algebraic and transcendental extension, Roots of polynomials, Splitting field.

**Unit-V:** More about roots: Derivative of a polynomial, Simple extension, Primitive element, Separable and inseparable extension, Perfect field, Finite field.

**Text Books:**

1. I.N. Herstein, Topics in Algebra, Wiley Eastern Ltd., New Delhi, 1975. (For Units I, III, IV, and V)
2. Vivek Sahai & Vikas Bist, Algebra, Narosa Publishing House, 1999 (For Unit-II).

**Reference Books:**

1. P.B. Bhattacharya, S.K. Jain and S.R. Nagpaul, Basic Abstract Algebra (2nd Ed.), Cambridge University Press, Indian Edition, 1997.
2. I.S. Luther and I.B.S. Passi, Algebra, Vol. I - Groups, Narosa Publishing House, 1996.
3. Surjeet Singh and Quazi Zameeruddin, Modern Algebra, Vikas Publishing House Pvt. Ltd., 1990.
4. N. Jacobson, Basic Algebra, Vols. I & II, Hindustan Publishing Company, 1980.
5. S. Lang, Algebra, 3rd Edition, Addison-Wesley, 1993.

M.A. Pawhe  
30.4.16

JK  
30/4/2016

M. Pami  
30.4.2016

Jenil  
30/04/2016

A. Neelg  
30.4.16

DR

