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| **LESSON PLAN SESSION 2023-2024 (Odd Semester)****SUBJECT -** Mathematics **Class -** B.Sc. Semester 1 **Paper -** Algebra |
| **S.No.** | **WEEK** | **TOPIC** |  |
| 1 | 24.07.2023-29.07.2023 | Symmetric, Skew symmetric, Hermitian and skew Hermitian matrices. Elementary Operations on matrices. |  |
| 2 | 01.08.2023-05.08.2023 | Rank of a matrices. Inverse of a matrix. Linear dependence and independence ofrows and columns of matrices. |  |
| 3 | 07.08.2023-12.08.2023 | Row rank and column rank of a matrix. Eigenvalues, eigenvectors and the characteristic equation of a matrix. |  |
| 4 | 14.08.2023-19.08.2023 | Minimal polynomial of a matrix. Cayley Hamilton theorem and its use in finding the inverse of a matrix. |  |
| 5 | 21.08.2023-26.08.2023 | Applications of matrices to a system of linear (both homogeneous and non–homogeneous) equations. |  |
| 6 | 28.08.2023-31.08.2023 | Theorems on consistency of a system of linear equations. |  |
| 7 | 04.09.2023-09.09.2023 | Unitary and Orthogonal Matrices, Bilinear and Quadratic forms. |  |
| 8 | 11.09.2023-16.09.2023 | Unitary and Orthogonal Matrices, Bilinear and Quadratic forms. (continued) |  |
| 9 | 18.09.2023-23.09.2023 | Relations between the roots and coefficients of general polynomial equation in one variable. |  |
| 10 | 25.09.2023-30.09.2023 | Solutions of polynomial equations having conditions on roots. |  |
| 11 | 02.10.2023-07.10.2023 | Common roots and multiple roots. |  |
| 12 | 09.10.2023-14.10.2023 | Transformation of equations. |  |
| 13 | 16.10.2023-21.10.2023 | Nature of the roots of an equation Descarte’s rule of signs. |  |
| 14 | 23.10.2023-28.10.2023 | Solutions of cubic equations (Cardon’s method). |  |
| 15 | 01.11.2023-04.11.2023 | Biquadratic equations and their solutions. |  |
| 16 | 06.11.2023-09.11.2023 | Biquadratic equations and their solutions. (continued) |  |
| 17 | 10.11.2023-16.11.2023 | Diwali Break |  |
| 18 | 20.11.2023-24.11.2023 | Revision of all Units |  |
| 19 | 25.11.2023-23.12.2023 | Examinations |  |
| 20 | 24.12.2023-31.12.2023 | Winter Vacation |  |

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| **LESSON PLAN SESSION 2023-2024 (Odd Semester)****SUBJECT -** Mathematics **Class -** B.Sc. Semester 3 **Paper –** Advanced Calculus |
| **S.No.** | **WEEK** | **TOPIC** |  |
| 1 | 24.07.2023-29.07.2023 | Continuity, Sequential Continuity, properties of continuous functions, Uniform continuity, chainrule of differentiability. |  |
| 2 | 01.08.2023-05.08.2023 | Continuity, Sequential Continuity, properties of continuous functions, Uniform continuity, chainrule of differentiability. (continued) |  |
| 3 | 07.08.2023-12.08.2023 | Mean value theorems; Rolle’s Theorem and Lagrange’s mean value theorem and their geometrical interpretations. |  |
| 4 | 14.08.2023-19.08.2023 | Taylor’s Theorem with various forms of remainders, Darboux intermediate value theorem for derivatives, Indeterminate forms. |  |
| 5 | 21.08.2023-26.08.2023 | Limit and continuity of real valued functions of two variables. Partial differentiation. |  |
| 6 | 28.08.2023-31.08.2023 | Total Differentials; Composite functions & implicit functions. |  |
| 7 | 04.09.2023-09.09.2023 | Change of variables. Homogenous functions & Euler’s theorem on homogeneous functions. |  |
| 8 | 11.09.2023-16.09.2023 | Taylor’s theorem for functions of two variables. |  |
| 9 | 18.09.2023-23.09.2023 | Differentiability of real valued functions of two variables. |  |
| 10 | 25.09.2023-30.09.2023 | Schwarz and Young’s theorem. Implicit function theorem. |  |
| 11 | 02.10.2023-07.10.2023 | Maxima, Minima and saddle points of two variables. |  |
| 12 | 09.10.2023-14.10.2023 | Lagrange’s method of multipliers. |  |
| 13 | 16.10.2023-21.10.2023 | Curves: Tangents, Principal normals, Binormals, Serret-Frenet formulae. |  |
| 14 | 23.10.2023-28.10.2023 | Locus of the centre of curvature, Spherical curvature, Locus of centre of Spherical curvature, Involutes, evolutes, Bertrand Curves. |  |
| 15 | 01.11.2023-04.11.2023 | Locus of the centre of curvature, Spherical curvature, Locus of centre of Spherical curvature, Involutes, evolutes, Bertrand Curves. (continued) |  |
| 16 | 06.11.2023-09.11.2023 | Surfaces: Tangent planes, one parameter family of surfaces, Envelopes. |  |
| 17 | 10.11.2023-16.11.2023 | Diwali Break |  |
| 18 | 20.11.2023-24.11.2023 | Revision |  |
| 19 | 25.11.2023-23.12.2023 | Examinations |  |
| 20 | 24.12.2023-31.12.2023 | Winter Vacation |  |

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| **LESSON PLAN SESSION 2023-2024 (Odd Semester)****SUBJECT -** Mathematics **Class -** B.Sc. Semester 5 **Paper –** Groups and Rings |
| **S.No.** | **WEEK** | **TOPIC** |  |
| 1 | 24.07.2023-29.07.2023 | Definition of a group with example and simple properties of groups, Subgroups and Subgroup criteria |  |
| 2 | 01.08.2023-05.08.2023 | Generation of groups, cyclic groups, Cosets, Left and right cosets |  |
| 3 | 07.08.2023-12.08.2023 | Index of a sub-group Coset decomposition, Largrage’s theorem and its consequences |  |
| 4 | 14.08.2023-19.08.2023 | Normal subgroups, Quotient groups |  |
| 5 | 21.08.2023-26.08.2023 | Homoomorphisms, isomophisms, automorphisms and inner automorphisms of a group. |  |
| 6 | 28.08.2023-31.08.2023 | Automorphisms of cyclic groups, Permutations groups. |  |
| 7 | 04.09.2023-09.09.2023 | Even and odd permutations. Alternating groups |  |
| 8 | 11.09.2023-16.09.2023 | Cayley’s theorem Center of a group and derived group of a group. |  |
| 9 | 18.09.2023-23.09.2023 | Introduction to rings, subrings, integral domains and fields |  |
| 10 | 25.09.2023-30.09.2023 | Characteristics of a ring. Ring homomorphisms, ideals (principle, prime and Maximal) and Quotient rings |  |
| 11 | 02.10.2023-07.10.2023 | Characteristics of a ring. Ring homomorphisms, ideals (principle, prime and Maximal) and Quotient rings (continued) |  |
| 12 | 09.10.2023-14.10.2023 | Field of quotients of an integral domain. |  |
| 13 | 16.10.2023-21.10.2023 | Euclidean rings, Polynomial rings |  |
| 14 | 23.10.2023-28.10.2023 | Polynomials over the rational field, The Eisenstein’s criterion, Polynomial rings over commutative rings, |  |
| 15 | 01.11.2023-04.11.2023 | Unique factorization domain, R uniquefactorization domain implies so is R[X1 , X2......Xn] |  |
| 16 | 06.11.2023-09.11.2023 | Revision of Unit I & II |  |
| 17 | 10.11.2023-16.11.2023 | Diwali Break |  |
| 18 | 20.11.2023-24.11.2023 | Revision of Unit III & IV |  |
| 19 | 25.11.2023-23.12.2023 | Examinations |  |
| 20 | 24.12.2023-31.12.2023 | Winter Vacation |  |

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| **LESSON PLAN SESSION 2023-2024 (Odd Semester)****SUBJECT -** Mathematics **Class -** B.Com. Semester 1 **Paper –** Business Mathematics 1 |
| **S.No** | **WEEK** | **TOPIC** |  |
| 1 | 24.07.2023-29.07.2023 | Indices and Logarithms |  |
| 2 | 01.08.2023-05.08.2023 | Indices and Logarithms (continued) |  |
| 3 | 07.08.2023-12.08.2023 | Theory of Sets: Meaning, elements, types, presentation and equalityof Sets |  |
| 4 | 14.08.2023-19.08.2023 | Union, Intersection, Complement and Difference of Sets |  |
| 5 | 21.08.2023-26.08.2023 | Venn Diagram, Cartesian Product of two Sets, Applications of Set Theory. |  |
| 6 | 28.08.2023-31.08.2023 | Elementary idea of Permutations |  |
| 7 | 04.09.2023-09.09.2023 | Elementary idea of Permutations (continued) |  |
| 8 | 11.09.2023-16.09.2023 | Combinations |  |
| 9 | 18.09.2023-23.09.2023 | Combinations (continued) |  |
| 10 | 25.09.2023-30.09.2023 | Sequence and Series, A.P |  |
| 11 | 02.10.2023-07.10.2023 | A.P. (continued) |  |
| 12 | 09.10.2023-14.10.2023 | G.P. |  |
| 13 | 16.10.2023-21.10.2023 | G.P. (continued) |  |
| 14 | 23.10.2023-28.10.2023 | Data interpretation- Introduction, approaches to data interpretation, tabulation |  |
| 15 | 01.11.2023-04.11.2023 | Bar graphs, Pie charts, Line graphs, Mix graphs |  |
| 16 | 06.11.2023-09.11.2023 | Revision of Unit I & II |  |
| 17 | 10.11.2023-16.11.2023 | Diwali Break |  |
| 18 | 20.11.2023-24.11.2023 | Revision of Unit III & IV |  |
| 19 | 25.11.2023-23.12.2023 | Examinations |  |
| 20 | 24.12.2023-31.12.2023 | Winter Vacation |  |