Name - Dr Kirti Chaudhary

Department Of Mathematics

Govt College Bhattu Kalan

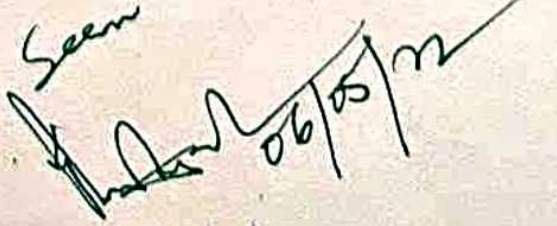Bsc/BA sem 2   session 2021-22

Sub - vector calculus

Month	Week	Topic
March	Week 3	• Basic introduction • Scalar product of vectors • Vector product of three vectors • Questions solved
	Week 4	• Product of four vectors • Examples • Reciprocal of vectors • Questions solved
April	Week 1	• Vector differentiation • Scalar valued point functions • Questions solved
	Week 2	• Vector valued point functions • Derivative alomg a curve • Questions solved
	Week 3	• Directional derivatives • Questions solved
	Week 4	• Gradient of scalar point function • Geometrical interpretation of grad • Question solved
May	Week 1	• Gradient as a point function • Divergence • Curl of vector point function • Questions solved
	Week 2	• Character of divergence function • Curl as a point function • Questions solved

	Week 3	• Gradient • Divergence • Curl of sums • Questions solved
	Week 4	• Laplacian operator • Orthogonal curvilinear coordinates • Conditions of orthogonality • Questions solved
June	Week 1	• Mutually orthogonal triad vectors • Gradient • Divergence
	Week 2	• Curl • Laplacian operator in curvilinear
	Week 3	• Cylindrical coordinates • Spherical coordinates
	Week 4	• Vector integration • Line integral • Surface integral • Volume integral
	Week 5	• Theorem on gauss • Green • Stokes • Problems based on these
July	Week 1	Revision of whole syallabus

Name - Dr Kirti Chaudhary

Department Of Mathematics

Govt College Bhattu Kalan

Bsc/BA sem 6   session 2021-22

Sub - Linear Algebra

Month	Week	Topic
March	Week 3	- Vector spaces - Subspaces - Sum and Direct sum - Questions solved
	Week 4	- Linear span - Linearly independent - Subsets of a vector space - Finitely generated vector space - Question solved
April	Week 1	- Existence theorem for basis - Finitely generated vector space - Finite dimensional vector space - Questions solved
	Week 2	- Invariance of number of elements of vector space - Dimensions - Quotient space - Question solved
	Week 3	- Homomorphism - Isomorphisim of vector space - Linear transformation - Linear forms on vector space - Questions solved
	Week 4	- Vector space of linear transformation - Dual spaces - Bidual spaces - Questions solved

May	Week 1	• Annihilator of subspaces • Null space • Range space of L.T • Rank and nullity theorem • Questions solved	
	Week 2	• Algebra of L.T • Minimal polynomial of L.T • Singular L.T • Non singular L.T • Questions solved	
	Week 3	• Matrix of linear transformation • Change of basis • Question solved	
	Week 4	• Eigen values • Eigen vectors of L.T • Questions solved	
June	Week 1	• Inner product space • Cauchynscharwz inequality • Orthogonal vectors • Questions solved	
	Week 2	• Orthogonal complements • Orthogonal sets • Basis • Questions solved	
	Week 3	• Bessels inequality • Questions solved	
	Week 4	• Gram Schmidt orthogonalization process • Questions solved	
	Week 5	• Adjoint of linear transformation • Properties • Unitary linear transformation	
July	Week 1	• Revision of whole syllabus	

See 06/06/22

Principal
Govt. College
Bhattu Kalan (Ftbd.)

Name - Dr Kirti Chaudhary

Department Of Mathematics

Govt College Bhattu Kalan

Bsc/BA sem 4

Sub - Sequence and series

Month	Week	Topic
March	Week 1	- Basic knowledge - Boundness of set of real number - Least upper bound - Questions solved
	Week 2	- Greatest lower bound - Interior points - Isolated points - Limit points - Questions solved
April	Week 1	- Open sets - Closed sets - Interior of a set - Closure of a set in real number - properties
	Week 2	- compact sets - heini borel property - sequence - real sequence and there convergence
	Week 3	- theorem on limit of sequence - monotonic sequence - Cauchy sequence - Cauchy general principle of convergence
	Week 4	- Sub sequence - Sub sequential limits - Infinite series - Convergence and divergence
May	Week 1	- Comparison test of positive term series - Cauchys general principal of convergence

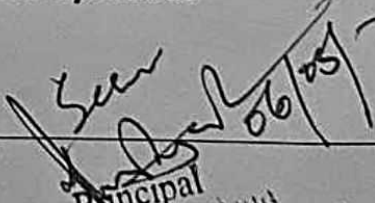|			
			• Convergence and divergence of geometric series • Hyper harmonic series test
		Week 2	• Infinite series • Dalembert ratio test • Rabbes test • Logarithm test • Demorgan test
		Week 3	• Cauchys n root test • Gauss test • Cauchys integral test
		Week 4	• Cauchys condensation test • Alternating series
June		Week 1	• Leibnitz test • Absolute and conditional convergence
		Week 2	• Arbitrary series • Abels lemma • Abels test • Dirichlets test • Insertion and removalof parthensis
		Week 3	• Dirichlet theorem • Riemanns rearrangement theorem • Pringshems theorem
		Week 4	• Multiplication of series • Cauchy product of series
		Week 5	• Convergence and absolute convergence of infinite products
July		Week 1	Revision of whole syallabus

Principal
Govt. College
Bhattu Kalan (Ftbd.)

Name - Dr Kirti Chaudhary

Department Of Mathematics

Govt College Bhattu Kalan

Bsc/BA sem 4 session 2021-22

Sub – Dynamics

Month	Week	Topic
March	Week 3	- Basic concepts - Velocity along a plane curve - Angular velocity - Questions solved - Radial and transversal acceleration
	Week 4	- Tangential and normal velocitoies - Questions solved - Relative motion - Relative velocity - Relative acceleration - Simple Harmonic Motion
April	Week 1	- Elastic Strings - Hookes law - Horizontal elastic string - Newtons alw of motions - Questions solved
	Week 2	- Motion of a lift - Motion on smooth horizontal plane - Question ssolved
	Week 3	- Work - Units of work - Questions solved - Energy - Conservative system of forces
	Week 4	- Motion of a particle in smooth curve - Motion on the inside of a smooth vertical circle - Questions solved

Month	Week	Topics
May	Week 1	• CYcloidal motion • Motion on a cycloid • Questions solved
	Week 2	• Motion of a projectile • Questions solved
	Week 3	• Velocity at a point of a trajectory • Directions of projection for a particle • Questions solved
	Week 4	• Range and time of aflight • Questions solved
June	Week 1	• Central orbits • Areal velocity • Elliptic orbit • Questions solved
	Week 2	• Hyperbolic orbit • Velocity in circle • Questions solved
	Week 3	• Apse and apsidal distances • Velocity of infinity • Questions solved
	Week 4	• Keplers law • Gravitations • Questions solved
	Week 5	• Motion of a particle in 3 dimensions • Questions solved
July	Week 1	Revision of whole syallabus

Name - Dr Kirti Chaudhary

Department Of Mathematics

Govt College Bhattu Kalan

Bsc/BA sem 4 Session -2021-22

Sub - Programming In C and Numerical Method

Month	Week	Topic
March	Week 3	• Programmers Model of a computer • Algorithm • Flow charts • Questions on flow chart • Importance to C • C character set • C tokens • Constant
	Week 4	• Identifiers • Variables • Data types • Integers • Character • Floating point type • Void Type • Variable Declaration
April	Week 1	• PrintF function • Main function • Execution of C Program • Operators • Library function in C • Programs • Scan F function
	Week 2	• Structured Languages • If Else Statement • Programs • Nested If else statement • Go to statement

	Week 3	- Loops - Programs on loops - Nested control structures - programs
	Week 4	- Functions - Accessing a function - Function declaration - Programs
May	Week 1	- C preprocessor - Macros - Other directives - Arrays - Programs on arrays - Multi dimensional arrays
	Week 2	- Puppeting on strings - Reading strings - Comparison on strings - Programs - Extraction on strings
	Week 3	- Defining a structure - Array of structures - Programs - Declaring pointers - Files in c
	Week 4	- GetC functions - Random access to files - Unformatted data files
June	Week 1	- Solution Of Algebraic and transdental equations - Variation of signs - Descartes rule of sign - theorem
	Week 2	- Bisection Method - Regula false method - Questions

Seen

Principal
Government College
Bhattu Kalan (Fateha...)

Principal
Govt. College
Bhattu Kalan (Ftbd.)

	Week 3	- Order of Convergence - Secant method - Newton Raphson method
	Week 4	- Questions - Gauss elimination method - Gauss Jordan method
	Week 5	- Triangularization method - Cholesky method - Crouts method
July	Week 1	Revision of whole syallabus

Seen
06/5/22

Principal
Government College
Bhattu Kalan (Fatehabad)