

I.B. (PG) COLLEGE, PANIPAT

LESSON PLAN

SESSION 2023-24 (01.01.2024 to 30.04.2024)

Weekly Lesson Plan (Even Semester)

PG (II / IV - Semester)

Name of the Paper:- Advanced Abstract Algebra

Class: M.Sc. (P)

Name of the Teachers (Section Wise) : Sumit

WEEK	DATE	TOPICS
1	January (1-6)	Commutators and higher commutators
		Commutators identities and commutator subgroups
		Derived group , Lemma of P.Hall.
		Theorems on derived group
		Central series of a group
SUNDAY - 07.01.2024		
2	January (8-13)	Theorems related to nilpotent groups
		Theorems related to nilpotent groups
		Finite nilpotent groups
		Upper central series of a group
		Lower central series of a group
SUNDAY - 14.01.2024		
3	January (15-16)	Theorems related to upper and lower central series
		Theorems related to upper and lower central series
	January (18-20)	Problem discussion
		Test
		Subgroups of finitely generated nilpotent groups
HOLIDAY - 17.01.2024-SHRI GURU GOBIND SINGH JI JAYANTI		
SUNDAY - 21.01.2024		
4	January (22-25)	Theorems
		Theorems
	January (27)	Sylow -subgroups of nilpotent groups
		Problem discussion
		Test
HOLIDAY - 26.01.2024 - REPUBLIC DAY		
SUNDAY - 28.01.2024		
5	January (29-31)	Similar linear transformations
		Invariant subspaces
	February (1-3)	Reduction to triangular form
		Related theorems
		Nilpotent transformations, index of nilpotency
SUNDAY - 04.02.2024		

9	February (5-10)	Uniqueness of the invariants of a nilpotent transformation
		Problem discussion
		Test
		Primary decomposition theorem
		Jordan blocks, Jordan canonical forms
		Cyclic module
SUNDAY - 11.02.2024		
7	February (12-13)	Related theorems
	February (15-17)	Companion matrix
		Linear transformation - rational canonical form
		Elementary divisors
		Related theorems
HOLIDAY 14.02.2024 - BASANT PANCHMI/SIR CHHOTU RAM JAYANTI		
SUNDAY - 18.02.2024		
8	February (19-24)	Related theorems
		Uniqueness of the elementary divisor
		Problem discussion
		Modules, submodules and quotient modules
		Generated modules, cyclic modules
		Related theorems
SUNDAY - 25.02.2024		
9	February (26-29)	Idempotents
	March (1-2)	Homomorphism of R-modules
		Fundamental theorem of homomorphism of R-modules
		Direct sum of modules
		Related theorems
		Endomorphism rings of left R-module
SUNDAY - 03.03.2024		
10	March (4-7)	Simple modules, semi-simple modules
	March (9)	Related theorems
		Free modules: Rank, submodules
		Related theorems
		Problem discussion
		Endomorphism ring
HOLIDAY - 08.03.2024 - MAHA SHIVRATRI		
SUNDAY - 10.03.2024		
11	March (11-16)	Related theorems
		Finitely generated modules
		Ascending chain conditions
		Theorems
		Descending chain conditions
		Theorems
SUNDAY - 17.03.2024		

12	March (18-22)	Notherian modules and rings
		Theorems
		Artinian modules and rings
		Theorems
		Nil and nilpotet ideals
HOLI VACATION - 23.03.2024 - 31.03.2024 (SHAHEEDI DIWAS - 23.03.2024)		
13	April (1-6)	Theorems
		Theorems
		Test
		Problem discussion
		Test
SUNDAY - 07.04.2024		
14	April (8-10)	Theorems
		Hilbert basis theorem
	April (12-13)	Theorems
		Problem discussion
		Revision
HOLIDAY - 11.04.2024 - ID-UL-FITR		
SUNDAY - 14.04.2024		
15	April (15-16)	Structure theorem
		Theorems
	April (18-20)	Problem discussion
		Wedderburn -Artin theorem
		Consequences of wedderburn artin theorem
HOLIDAY - 17.04.2024 - RAM NAVMI		
SUNDAY - 21.04.2024		
16	April (22-27)	Theorems
		Theorems
		Theorems
		Test
		Problem discussion
SUNDAY - 28.04.2024		
17	April (29-30)	Test
		Theoems
		Problem discussion
		Final Revision
University Examinations w.e.f. 01.05.2024		

I.B. (PG) COLLEGE, PANIPAT

LESSON PLAN

SESSION 2023-24 (01.01.2024 to 30.04.2024)

Weekly Lesson Plan (Even Semester)

PG (II / IV - Semester)

Name of the Paper:- Real Analysis-II

Class: M.Sc I(Semester II)

Name of the Teachers (Section Wise) : Ms. Komal

WEEK	DATE	TOPICS
1	January (1-6)	introduction to Lebesgue outer measure
		Elementary properties of outer measure
		Measurable sets and their properties
		Lebesgue measure of sets of real numbers
		doubt class
SUNDAY - 07.01.2024		
2	January (8-13)	Algebra of measurable sets
		Borel sets and their measurability
		characterization of measurable sets in terms of open, closed set
		characterization of measurable sets in terms of F and G sets
		existence of a non-measurable set
SUNDAY - 14.01.2024		
3	January (15-16)	Lebesgue measurable functions and their properties
		characteristic functions and theorem based on it
	January (18-20)	simple functions and theorem based on it
		approximation of measurable functions by sequences of simple functions
		approximation of measurable functions by sequences of simple functions
SUNDAY - 21.01.2024		
4	January (22-25)	measurable functions as nearly continuous functions
		Borel measurability of a function
	January (27)	Almost uniform convergence
		Egoroff's theorem, Lusin's theorem
		convergence in measure
HOLIDAY - 26.01.2024 - REPUBLIC DAY		
SUNDAY - 28.01.2024		
5	January (29-31)	F. Riesz theorem that every sequence which is convergent in measure
		F. Riesz theorem that every sequence which is convergent in measure
	February (1-3)	The Lebesgue integral
		shortcomings of Riemann integral
		Lebesgue integral of a bounded function over a set of finite measure
SUNDAY - 04.02.2024		

6	February (5-10)	Lebesgue integral as a generalization of the Riemann integral
		Bounded convergence theorem
		Lebesgue theorem regarding points of discontinuities of Riemann integrals
		doubt session
		test (section 1& 2)
SUNDAY - 11.02.2024		
7	February (12-13)	Integral of a non negative function
	February (15-17)	Famous lemma
		Monotone convergence theorem
		Integration of series
		the general Lebesgue integral
HOLIDAY 14.02.2024 - BASANT PANCHMI/SIR CHHOTU RAM JAYANTI		
SUNDAY - 18.02.2024		
8	February (19-24)	Lebesgue convergence theorem
		Lebesgue convergence theorem (continued)
		Lebesgue convergence theorem (continued)
		doubt class
		Differentiation and integration :
		Differentiation of monotone functions
SUNDAY - 25.02.2024		
9	February (26-29)	Vitali's covering theorem.
	March (1-2)	the four dini derivatives
		Lebesgue differentiation theorem
		doubt class
		Assignment 2
		surprise test
SUNDAY - 03.03.2024		
10	March (4-7)	functions of bounded variation
	March (9)	Assignment 2
		surprise test
		functions of bounded variation
		Absolutely continuous functions
		introduction to convex functions
HOLIDAY - 08.03.2024 - MAHA SHIVRATRI		
SUNDAY - 10.03.2024		
11	March (11-16)	theorem based on convex functions
		theorem based on convex functions
		theorem based on convex functions
		doubt session
		jenson's inequality
		jenson's inequality
SUNDAY - 17.03.2024		

12	March (18-22)	
		doubt class
		test of section 3
		re- vision of chapter 1
		introduction to L_p spaces
introduction to L_p spaces		
HOLI VACATION - 23.03.2024 - 31.03.2024 (SHAHEEDI DIWAS - 23.03.2024)		
13	April (1-6)	examples of L_p spaces
		examples of L_p spaces
		CONTINUE
		REVISION
		DOUBT CLEARING CLASS
SUNDAY - 07.04.2024		
14	April (8-10)	Holer inequality
	April (12-13)	Holer inequality
		Minkowski inequality
		completeness of L_p spaces
		completeness of L_p spaces
HOLIDAY - 11.04.2024 - ID-UL-FITR		
SUNDAY - 14.04.2024		
15	April (15-16)	Bounded linear functionals on the L_p spaces
	April (18-20)	Bounded linear functionals on the L_p spaces
		Riesz representation theorem
		Riesz representation theorem
	HOLIDAY - 17.04.2024 - RAM NAVMI	
SUNDAY - 21.04.2024		
16	April (22-27)	
		REVISION
		REVISION
		REVISION
SUNDAY - 28.04.2024		
17	April (29-30)	REVISION
		REVISION
		REVISION
		REVISION
University Examinations w.e.f. 01.05.2024		

I.B. (PG) COLLEGE, PANIPAT

LESSON PLAN

SESSION 2023-24 (01.01.2024 to 30.04.2024)

Weekly Lesson Plan (Even Semester)

PG (II / IV - Semester)

Name of the Paper:-Differential equation

Class: M.Sc. (P)

Name of the Teachers (Section Wise) : Manish Kumar

WEEK	DATE	TOPICS
1	January (1-6)	Linear differential equation
		Second order linear equation
		Self adjoint equation of second order
		Basic facts
SUNDAY - 07.01.2024		
2	January (8-13)	Examples based on self adjoint continued...
		Superposition principal
		theorem based on topic
		theorem based on topic
SUNDAY - 14.01.2024		
3	January (15-16)	Riccati Equation
		Pruffer transformation
	January (18-20)	zero of a solution
		theorem based on topic
		theorem based on topic
SUNDAY - 21.01.2024		
4	January (22-25)	Oscillatory Equation
		Non oscillatory equation
	January (27)	theorem based on topic
		examples
HOLIDAY - 26.01.2024 - REPUBLIC DAY		
SUNDAY - 28.01.2024		
5	January (29-31)	Abels formula
		Common zeros of solution and their linear dependance
	February (1-3)	theorem based on topic
		theorem based on topic
		doubts
SUNDAY - 04.02.2024		

6	February (5-10)	Strum theory
		Strum separation theorem
		Strum fundamentals comparison theorem
		corollaries based on above theorem
SUNDAY - 11.02.2024		
7	February (12-13)	Elementary linear oscillations
	February (15-17)	Autonomous system
		The phase plane
		Paths and critical point
	theorem based on topic	
HOLIDAY 14.02.2024 - BASANT PANCHMI/SIR CHHOTU RAM JAYANTI		
SUNDAY - 18.02.2024		
8	February (19-24)	theorem based on topic
		types of critical point
		node, centre
		Saddle, and Spiral point
		theorem based on topic
SUNDAY - 25.02.2024		
9	February (26-29)	Stability of critical point
	March (1-2)	theorem based on topic
		examples based on critical point
		continued...
		Critical points and path of linear system
SUNDAY - 03.03.2024		
10	March (4-7)	Basic theorem and their application
	March (9)	theorem and examples
		revision of topic
		class test
		Critical point and paths of non linear system
HOLIDAY - 08.03.2024 - MAHA SHIVRATRI		
SUNDAY - 10.03.2024		
11	March (11-16)	Basic theorem and their application
		Liapunov function
		Liapunov direct method for stability
		examples and theorem
SUNDAY - 17.03.2024		

12	March (18-22)	Limit cycle and periodic solution
		Existence and non existence of limit cycles
		Bendixon non existence theorem
		examples and theorem
		Half path or semi orbit
HOLI VACATION - 23.03.2024 - 31.03.2024 (SHAHEEDI DIWAS - 23.03.2024)		
13	April (1-6)	Poincare benedixon theorem
		index of a critical point
		revision of unit
		Test
SUNDAY - 07.04.2024		
14	April (8-10)	Linear problem , periodic boundary condition
	April (12-13)	Regular and Singular linear BVP
		Eigen value and eigen function
		Problem Dicussion
		Test
HOLIDAY - 11.04.2024 - ID-UL-FITR		
SUNDAY - 14.04.2024		
15	April (15-16)	Strum liouville BVP
	April (18-20)	Strum liouville BVP
		Strum liouville BVP
HOLIDAY - 17.04.2024 - RAM NAVMI		
SUNDAY - 21.04.2024		
16	April (22-27)	
		Application of BVP, implicit function theorem use
		Application of BVP, implicit function theorem use
		Fixed point theorem
		continued...
SUNDAY - 28.04.2024		
17	April (29-30)	revision of unit
		Revision
		Test
University Examinations w.e.f. 01.05.2024		

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LESSON PLAN

SESSION 2023-24 (01.01.2024 to 30.04.2024)

Weekly Lesson Plan (Even Semester)

PG (II / IV - Semester)

Name of the Paper:- Complex Analysis-II

Class: M.Sc. Previous

Name of the Teachers (Section Wise) : Kirti Asija

WEEK	DATE	TOPICS
1	January (1-6)	Spaces of Analytic Functions
		Completeness of Analytic Functions
		Hurwitz Theorem
		Hurwitz Theorem
		Montel's Theorem
		Montel's Theorem
SUNDAY - 07.01.2024		
2	January (8-13)	Problem Discussion
		Test
		Riemann Mapping Theorem
		Riemann Mapping Theorem
		Infinite Products
		Theorems related to Infinite Products
SUNDAY - 14.01.2024		
3	January (15-16)	Theorems related to Infinite Products
		Theorems related to Infinite Products
	January (18-20)	Weierstrass Factorisation Theorem
		Weierstrass Factorisation Theorem
		Problem Discussion
		Test
HOLIDAY - 17.01.2024-SHRI GURU GOBIND SINGH JI JAYANTI		
SUNDAY - 21.01.2024		
4	January (22-25)	Factorisation of sine function
		Related Numericals
	January (27)	Gamma Function and its Properties
		Theorems on Properties of Gamma Function
		Theorems on Properties of Gamma Function
HOLIDAY - 26.01.2024 - REPUBLIC DAY		
SUNDAY - 28.01.2024		
5	January (29-31)	Functional Equation for Gamma Function
		Integral Version of Gamma Function
	February (1-3)	Problem Discussion
		Test
		Riemann - zeta function
		Riemann Functional Equation
SUNDAY - 04.02.2024		

6	February (5-10)	Runge's Theorem
		Runge's Theorem
		Mittag Leffler's Theorem
		Mittag Leffler's Theorem
		Problem Discussion
		Test
SUNDAY - 11.02.2024		
7	February (12-13)	Analytic Continuation
	February (15-17)	Uniqueness of Direct Analytic Continuation
		Uniqueness of Analytic Continuation along a curve
		Uniqueness of Analytic Continuation along a curve
		Test
HOLIDAY 14.02.2024 - BASANT PANCHMI/SIR CHHOTU RAM JAYANTI		
SUNDAY - 18.02.2024		
8	February (19-24)	Power Series Method of Analytic Continuation
		Schwartz Reflection Principle
		Schwartz Reflection Principle
		Problem Discussion
		Test
		Monodromy Theorem
SUNDAY - 25.02.2024		
9	February (26-29)	Consequences of Monodromy Theorem
	March (1-2)	Harmonic Function as a Disc
		Poisson's kernel
		Harnack's Inequality
		Harnack's Inequality
		Harnack's Theorem
SUNDAY - 03.03.2024		
10	March (4-7)	Harnack's Theorem
	March (9)	Canonical Theorem
		Jenson's Formula
		Poisson-Jenson's Formula
		Hadamard's Three Circles Theorem
		Problem Discussion
HOLIDAY - 08.03.2024 - MAHA SHIVRATRI		
SUNDAY - 10.03.2024		
11	March (11-16)	Dirichlet Problem for a Unit Disc
		Dirichlet Problem for a region
		Green's Function
		Problem Discussion
		Test
		Order of an entire function
SUNDAY - 17.03.2024		
12	March (18-22)	Exponent of Convergence
		Related Theorems
		Borels Theorem
		Borels Theorem
		Hadamard Factorisation Theorem
		Hadamard Factorisation Theorem
HOLI VACATION - 23.03.2024 - 31.03.2024 (SHAHEEDI DIWAS - 23.03.2024)		
13	April (1-6)	The Range of an analytic function
		The Range of an analytic function
		Bloch's Theorem
		Bloch's Theorem
		Problem Discussion
		Test
SUNDAY - 07.04.2024		
14	April (8-10)	Little Picard Theorem
	April (12-13)	Little Picard Theorem
		Problem Discussion
		Schottky's Theorem
		Schottky's Theorem
		Montel -Carathedory Theorem
HOLIDAY - 11.04.2024 - ID-UL-FITR		
SUNDAY - 14.04.2024		
15	April (15-16)	Montel -Carathedory Theorem
	April (18-20)	Problem Discussion
		Test
		Great Picard Theorem
		Great Picard Theorem
HOLIDAY - 17.04.2024 - RAM NAVMI		
SUNDAY - 21.04.2024		
16	April (22-27)	Great Picard Theorem
		Related Numericals
		Related Numericals
		Related Numericals
		Problem Discussion
		Test
SUNDAY - 28.04.2024		
17	April (29-30)	Revision
		Revision
		Revision
		Revision
		Test
University Examinations w.e.f. 01.05.2024		

I.B. (PG) COLLEGE, PANIPAT

LESSON PLAN

SESSION 2023-24 (01.01.2024 to 30.04.2024)

Weekly Lesson Plan (Even Semester)

PG (II / IV - Semester)

Name of the Paper:- FORTRAN

Class: M.SC (P)

Name of the Teachers (Section Wise) : Priyanka garg

WEEK	DATE	TOPICS
1	January (1-6)	Evolution of fortran
		Writing a program
		input statement
		Program examples
		Constants and scalar variables
		REVISE
SUNDAY - 07.01.2024		
2	January (8-13)	Declaring variable names
		Some simple programs
		Implicit Declaration
		Named constants
		Some program examples
		Arithmetic expressions
SUNDAY - 14.01.2024		
3	January (15-16)	Precedence of operations in expressions
		Examples of arithmetic expressions
		Defining variables
	January (18-20)	Mixed mode expressions
		Examples of use of functions
		List-Directed input statement
HOLIDAY - 17.01.2024-SHRI GURU GOBIND SINGH JI JAYANTI		
SUNDAY - 21.01.2024		
4	January (22-25)	Some program examples
		List-Directed output statement
	January (27)	Some program examples
		Relational operators
		The Block IF Construct
HOLIDAY - 26.01.2024 - REPUBLIC DAY		
SUNDAY - 28.01.2024		
5	January (29-31)	The Block DO Loop
		Program examples
		Count Controlled DO Loop
	February (1-3)	Rules to be followed in writing DO Loops
		Example Programs
		REVISION
SUNDAY - 04.02.2024		

6	February (5-10)	Logical constants,variables
		Logical expressions
		Precedence rules for logical operators
		Example Programs
		The case statement
		Programs
SUNDAY - 11.02.2024		
7	February (12-13)	TEST
	February (15-17)	Function Subprograms
		Syntax rules for function subprograms
		Generic Functions
		Example Programs
HOLIDAY 14.02.2024 - BASANT PANCHMI/SIR CHHOTU RAM JAYANTI		
SUNDAY - 18.02.2024		
8	February (19-24)	SUBROUTINES
		Internal Procedures
		Example Programs
		Arrays variables
		Use of multiple subscripts
		DO type notation
SUNDAY - 25.02.2024		
9	February (26-29)	Terminology Used for multidimensional arrays
	March (1-2)	Use of arrays in DO Loops
		Example Programs
		Format Description
		Multi-Record Formats
		Printing Character strings
SUNDAY - 03.03.2024		
10	March (4-7)	Generalized Input/Output statements
	March (9)	Example Programs
		The Character Data Type
		Manipulating Strings
		Comparing Character Strings
		TEST
HOLIDAY - 08.03.2024 - MAHA SHIVRATRI		
SUNDAY - 10.03.2024		
11	March (11-16)	Example Programs
		Procedures with Multi-Dimensional Arrays
		Example Programs
		Temporary Arrays in Procedures
		Functions as Dummy Arguments
		Example Programs
SUNDAY - 17.03.2024		

12	March (18-22)	Defining Derived Types
		Using Derived Types
		Using Derived Types in Procedures
		Using Derived Types in Arrays
		Example Programs
		Creating a Sequential File
HOLI VACATION - 23.03.2024 - 31.03.2024 (SHAHEEDI DIWAS - 23.03.2024)		
13	April (1-6)	Searching a Sequential File
		Example Programs
		Updating a Sequential File
		REVISION
		TEST
SUNDAY - 07.04.2024		
14	April (8-10)	Searching a Sequential File
		Example Programs
		Updating a Sequential File
	April (12-13)	REVISION
		TEST
HOLIDAY - 11.04.2024 - ID-UL-FITR		
SUNDAY - 14.04.2024		
15	April (15-16)	Direct Access Files
		Example Programs
	April (18-20)	The Pointer Data Type
		Creating a Sequential File
HOLIDAY - 17.04.2024 - RAM NAVMI		
SUNDAY - 21.04.2024		
16	April (22-27)	Example Programs
		Abstract data Type complex
		Example Programs
		Kind Specification for reals
		Use of complex Quantities
SUNDAY - 28.04.2024		
17	April (29-30)	PROGRAM
		Revision
University Examinations w.e.f. 01.05.2024		