

Date: 13.04.2022

I.B. (PG) COLLEGE, PANIPAT
SESSION 2021-2022 (11.04.2022 to 19.07.2022)

Weekly Lesson Plan (Even Semester)

Name of the Paper:- __REAL ANALYSIS -II

Class: __M.SC.-(P)(2nd sem)

Name of the Teachers (Section wise): __KOMAL VERMA

WEEK	DATE	TOPICS
1	April (11-16)	introduction to Lebesgue outer measure
		Elementary properties of outer measure
		Measurable sets and their properties
		Lebesgue measure of sets of real numbers
		doubt class
HOLIDAY - 14th APRIL (Dr. B.R. Ambedkar Jayanti /Mahavir Jayanti)		
SUNDAY - 17.04.2022		
2	April (18-23)	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
		doubt class
SUNDAY - 24.04.2022		
3	April (25-30)	Lebesgue measurable functions and their properties
		characteristic functions and theorem based on it
		simple functions and theorem based on it
		approximation of measurable functions by sequences of simple functions
		doubt class
		measurable functions as nearly continuous functions
SUNDAY - 01.05.2021		
4	May (2, 4-7)	Borel measurability of a function
		Almost uniform convergence
		Egoroff's theorem, lusin's theorem
		convergence in measure
		DOUBT CLASS
HOLIDAY - 3rd May (Id-ul-Fitr / Parshuram Jayanti)		
SUNDAY - 08.05.2022		
5	May (9-14)	F.Riesz theorem that every sequence which is convergent in measure has an almost everywhere convergent subsequence.
		The Lebesgue integral
		shortcomings of Riemann integral
		Lebsegue integral of a bounded function over a set of finite measure and its properties
		doubt class
		Assignment 1
SUNDAY - 15.05.2022		

6	May (16-21)	Lebesgue integral as a generalization of the Riemann integral
		Bounded convergence theorem
		Lebesgue theorem regarding points of discontinuities of Riemann integrable functions
		doubt session
		test (section 1& 2)
		Integral of a non negative function
SUNDAY - 22.05.2022		
7	May (23-28)	Famous lemma
		Monotone convergence theorem
		Integration of series
		the general Lebesgue integral
		Lebesgue convergence theorem
		Lebesgue convergence theorem (continued)
SUNDAY -29.05.2022		
8	May (30-31) June (1, 3-4)	Lebesgue convergence theorem (continued)
		doubt class
		Differentiation and integration :
		Differentiation of monotone functions
		Vitali's covering theorem.
HOLIDAY - 02.06.2022 (Maharana Pratap Jayanti)		
SUNDAY - 05.06.2022		
9	June (6-11)	the four dini derivatives
		Lebesgue differentiation theorem
		doubt class
		Assignment 2
		surprise test
		functions of bounded variation
SUNDAY - 12.06.2022		
10	June (13, 15-18)	Assignment 2
		surprise test
		functions of bounded variation
		Absolutely continuous functions
		introduction to convex functions
HOLIDAY -14.06.2022 (Sant Kabir Jayanti)		
SUNDAY - 19.06.2022		
11	June (20-25)	theorem based on convex functions
		jenson's inequality
		doubt class
		test of section 3
		re- vision of chapter 1
		Assignment
SUNDAY - 26.06.2022		

12	June (27-30)	introduction to L_p spaces
		examples of L_p spaces
	July (1-2)	CONTINUE
		REVISION
		DOUBT CLEARING CLASS
		TEST
SUNDAY - 03.07.2022		
13	July (4-9)	Minkowski inequality
		Hölder inequality
		completeness of L_p spaces
		Bounded linear functionals on the L_p spaces
		Riesz representation theorem
		doubt class
SUNDAY & HOLIDAY (Id-ul-Zuha (Bakr-Id) - 10.07.2022		
14	July (11-16)	test of section 4
		REVISION
		REVISION
		REVISION
		REVISION
		REVISION
SUNDAY - 17.07.2022		
15	July (18-19)	TEST
		TEST
20.07.2022 - EXAMINATION ONWARDS		

Date: 13.04.2022

I.B. (PG) COLLEGE, PANIPAT
SESSION 2021-2022 (11.04.2022 to 19.07.2022)

Weekly Lesson Plan (Even Semester)

Name of the Paper:- Advanced Abstract Algebra

Class: M.Sc. Previous (2nd sem)

Name of the Teachers (Section wise): Prof. Deepali

WEEK	DATE	TOPICS
1	April (11-16)	Commutators and higher commutators
		Commutators identities and commutator subgroups
		Derived group , Lemma of P.Hall.
		Theorems on derived group
		Central series of a group
HOLIDAY - 14th APRIL (Dr. B.R. Ambedkar Jayanti /Mahavir Jayanti)		
SUNDAY - 17.04.2022		
2	April (18-23)	Nilpotent groups
		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 - 24.04.2022		
3	April (25-30)	Theorems related to upper and lower central series
		Theorems related to upper and lower central series
		Problem discussion
		Test
		Subgroups of finitely generated nilpotent groups
		Subgroups of finitely generated nilpotent groups
SUNDAY - 01.05.2021		
4	May (2, 4-7)	Theorems
		Theorems
		Sylow -subgroups of nilpotent groups
		Problem discussion
		Test
HOLIDAY - 3rd May (Id-ul-Fitr / Parshuram Jayanti)		
SUNDAY - 08.05.2022		
5	May (9-14)	Similar linear transformations
		Invariant subspaces
		Reduction to triangular form
		Related theorems
		Nilpotent transformations, index of nilpotency
		Related theorems
SUNDAY - 15.05.2022		

6	May (16-21)	Uniqueness of the invariants of a nilpotent transformation
		Problem discussion
		Test
		Primary decomposition theorem
		Jordan blocks, Jordan canonical forms
		Cyclic module
SUNDAY - 22.05.2022		
7	May (23-28)	Related theorems
		Companion matrix
		Linear transformation - rational canonical form
		Elementary divisors
		Related theorems
		Related theorems
SUNDAY - 29.05.2022		
8	May (30-31) June (1, 3-4)	Uniqueness of the elementary divisor
		Problem discussion
		Modules, submodules and quotient modules
		Generated modules, cyclic modules
		Related theorems
HOLIDAY - 02.06.2022 (Maharana Pratap Jayanti)		
SUNDAY - 05.06.2022		
9	June (6-11)	Idempotents
		Homomorphism of R-modules
		Fundamental theorem of homomorphism of R-modules
		Direct sum of modules
		Related theorems
		Endomorphism rings of left R-module
SUNDAY - 12.06.2022		
10	June (13, 15-18)	Simple modules, semi-simple modules
		Related theorems
		Free modules: Rank, submodules
		Related theorems
		Problem discussion
HOLIDAY - 14.06.2022 (Sant Kabir Jayanti)		
SUNDAY - 19.06.2022		
11	June (20-25)	Endomorphism ring
		Related theorems
		Finitely generated modules
		Ascending chain conditions
		Theorems
		Descending chain conditions
SUNDAY - 26.06.2022		

12	June (27-30)	Theorems
		Noetherian modules and rings
	July (1-2)	Theorems
		Artinian modules and rings
		Theorems
Theorems		
SUNDAY - 03.07.2022		
13	July (4-9)	Nil and nilpotet ideals
		Theorems
		Hilbert basis theorem
		Theorems
		Problem discussion
Boolean rings		
SUNDAY & HOLIDAY (Id-ul-Zuha (Bakr-Id) - 10.07.2022		
14	July (11-16)	Structure theorem
		Theorems
		Problem discussion
		Wedderburn -Artin theorem
		Consequences of wedderburn artin theorem
Theorems		
SUNDAY - 17.07.2022		
15	July (18-19)	Theoems
		Problem discussion
20.07.2022 - EXAMINATION ONWARDS		

Date: 13.04.2022

I.B. (PG) COLLEGE, PANIPAT
SESSION 2021-2022 (11.04.2022 to 19.07.2022)

Weekly Lesson Plan (Even Semester)

Name of the Paper:- Complex Analysis-II

Class: M.Sc. Maths (P) 2nd sem

Name of the Teachers (Section wise): Kirti Asija

WEEK	DATE	TOPICS
1	April (11-16)	Spaces of Analytic Functions
		Completeness of Analytic Functions
		Hurwitz Theorem
		Hurwitz Theorem
		Montel's Theorem
HOLIDAY - 14th APRIL (Dr. B.R. Ambedkar Jayanti /Mahavir Jayanti)		
SUNDAY - 17.04.2022		
2	April (18-23)	Montel's Theorem
		Problem Discussion
		Riemann Mapping Theorem
		Riemann Mapping Theorem
		Infinite Products
		Theorems related to Infinite Products
SUNDAY - 24.04.2022		
3	April (25-30)	Theorems related to Infinite Products
		Weierstrass Factorisation Theorem
		Weierstrass Factorisation Theorem
		Problem Discussion
		Factorisation of sine function
		Related Numericals
SUNDAY - 01.05.2021		
4	May (2, 4-7)	Gamma Function and its Properties
		Theorems on Properties of Gamma Function
		Theorems on Properties of Gamma Function
		Functional Equation for Gamma Function
		Integral Version of Gamma Function
HOLIDAY - 3rd May (Id-ul-Fitr / Parshuram Jayanti)		
SUNDAY - 08.05.2022		
5	May (9-14)	Problem Discussion
		Test
		Riemann - zeta function
		Riemann Functional Equation
		Runge's Theorem
		Runge's Theorem
SUNDAY - 15.05.2022		

6	May (16-21)	Mittag leffler's Theorem
		Mittag Leffler's Theorem
		Analytic Continuation
		Uniqueness of Direct Analytic Continuation
		Uniqueness of Analytic Continuation along a curve
		Uniqueness of Analytic Continuation along a curve
SUNDAY - 22.05.2022		
7	May (23-28)	Power Series Method of Analytic Continuation
		Schwartz Reflection Principle
		Schwartz Reflection Principle
		Problem Discussion
		Test
		Monodromy Theorem
SUNDAY -29.05.2022		
8	May (30-31) June (1, 3-4)	Consequences of Monodromy Theorem
		Harmonic Function as a Disc
		Poisson's kernel
		Harnack's Inequality
		Harnack's Inequality
HOLIDAY - 02.06.2022 (Maharana Pratap Jayanti)		
SUNDAY - 05.06.2022		
9	June (6-11)	Harnack's Theorem
		Harnack's Theorem
		Canonical Theorem
		Jenson's Formula
		Poisson Jenson's Formula
		Hadamard's Three Circles Theorem
SUNDAY - 12.06.2022		
10	June (13, 15-18)	Problem Discussion
		Dirichlet Problem for a Unit Disc
		Dirichlet Problem for a region
		Green's Function
		Problem Discussion
HOLIDAY -14.06.2022 (Sant Kabir Jayanti)		
SUNDAY - 19.06.2022		
11	June (20-25)	Test
		Order of an entire function
		Exponent of Convergence
		Related Theorems
		Borels Theorem
		Borels Theorem
SUNDAY - 26.06.2022		

12	June (27-30)	Hadamard Factorisation Theorem
		Hadamard Factorisation Theorem
	July (1-2)	The Range of an analytic function
		The Range of an analytic function
		Bloch's Theorem
		Bloch's Theorem
SUNDAY - 03.07.2022		
13	July (4-9)	Little Picard Theorem
		Little Picard Theorem
		Problem Discussion
		Schottky's Theorem
		Schottky's Theorem
		Montel -Carathedory Theorem
SUNDAY & HOLIDAY (Id-ul-Zuha (Bakr-Id) - 10.07.2022		
14	July (11-16)	Montel -Carathedory Theorem
		Great Picard Theorem
		Great Picard Theorem
		Related Numericals
		Related Numericals
		Problem Discussion
SUNDAY - 17.07.2022		
15	July (18-19)	Revision
		Test
20.07.2022 - EXAMINATION ONWARDS		

Date: 13.04.2022

I.B. (PG) COLLEGE, PANIPAT
SESSION 2021-2022 (11.04.2022 to 19.07.2022)

Weekly Lesson Plan (Even Semester)

Name of the Paper:-_Differential equation Class: _MSC(P) (2nd sem)

Name of the Teachers (Section wise): _MANISH KUMAR

WEEK	DATE	TOPICS
1	April (11-16)	Linear differential equation
		Second order linear equation
		Self adjoint equation of second order
		Basic facts
HOLIDAY - 14th APRIL (Dr. B.R. Ambedkar Jayanti /Mahavir Jayanti)		
SUNDAY - 17.04.2022		
2	April (18-23)	Examples based on self adjoint
		continued...
		Superposition principal
		theorem based on topic
		theorem based on topic
SUNDAY - 24.04.2022		
3	April (25-30)	Riccati Equation
		Pruffer transformation
		zero of a solution
		theorem based on topic
		theorem based on topic
SUNDAY - 01.05.2021		
4	May (2, 4-7)	Oscillatory Equation
		Non oscillatory equation
		theorem based on topic
		examples
HOLIDAY - 3rd May (Id-ul-Fitr / Parshuram Jayanti)		
SUNDAY - 08.05.2022		
5	May (9-14)	Abels formula
		Common zeros of solution and their linear dependance
		theorem based on topic
		theorem based on topic
		doubts
		class test
SUNDAY - 15.05.2022		

6	May (16-21)	Strum theory
		Strum separation theorem
		Strum fundamentals comparison theorem
		corollaries based on above theorem
SUNDAY - 22.05.2022		
7	May (23-28)	Elementary linear oscillations
		Autonomous system
		The phase plane
		Paths and critical point
		theorem based on topic
SUNDAY - 29.05.2022		
8	May (30-31) June (1, 3-4)	theorem based on topic
		types of critical point
		node, centre
		Saddle, and Spiral point
		theorem based on topic
HOLIDAY - 02.06.2022 (Maharana Pratap Jayanti)		
SUNDAY - 05.06.2022		
9	June (6-11)	Stability of critical point
		theorem based on topic
		examples based on critical point
		continued...
		Critical points and path of linear system
SUNDAY - 12.06.2022		
10	June (13, 15-18)	Basic theorem and their application
		theorem and examples
		revision of topic
		class test
		Critical point and paths of non linear system
HOLIDAY - 14.06.2022 (Sant Kabir Jayanti)		
SUNDAY - 19.06.2022		
11	June (20-25)	Basic theorem and their application
		Liapunov function
		Liapunov direct method for stability
		examples and theorem
SUNDAY - 26.06.2022		

12	June (27-30)	Limit cycle and periodic solution
		Existence and non existence of limit cycles
	July (1-2)	Bendixon non existence theorem
		examples and theorem
		examples and theorem
		Half path or semi orbit
SUNDAY - 03.07.2022		
13	July (4-9)	Poincare benedixon theorem
		index of a critical point
		revision of unit
		Linear problem , periodic boundary condition
		Regular and Singular linear BVP
		Eigen value and eigen function
SUNDAY & HOLIDAY (Id-ul-Zuha (Bakr-Id) - 10.07.2022		
14	July (11-16)	Strum liouville BVP
		Orthogonality of eigen function corresponding to eigen value
		Green function
		Application of BVP, implicit function theorem use
		Fixed point theorem
		continued...
SUNDAY - 17.07.2022		
15	July (18-19)	revision of unit
		class test
20.07.2022 - EXAMINATION ONWARDS		

Date: 13.04.2022

I.B. (PG) COLLEGE, PANIPAT
SESSION 2021-2022 (11.04.2022 to 19.07.2022)

Weekly Lesson Plan (Even Semester)

Name of the Paper:-Fortran

Class: M.Sc. P (2nd sem)

Name of the Teachers (Section wise): Mansi Bansal

WEEK	DATE	TOPICS
1	April (11-16)	Evolution of fortran
		Writing a program
		input statement
		Program examples
		Constants and scalar variables
HOLIDAY - 14th APRIL (Dr. B.R. Ambedkar Jayanti /Mahavir Jayanti)		
SUNDAY - 17.04.2022		
2	April (18-23)	Declaring variable names
		Some simple programs
		Implicit Declaration
		Named constants
		Some program examples
		Arithmetic expressions
SUNDAY - 24.04.2022		
3	April (25-30)	Precedence of operations in expressions
		Examples of arithmetic expressions
		Defining variables
		Mixed mode expressions
		Examples of use of functions
		List-Directed input statement
SUNDAY - 01.05.2021		
4	May (2, 4-7)	Some program examples
		List-Directed output statement
		Some program examples
		Relational operators
		The Block IF Construct
HOLIDAY - 3rd May (Id-ul-Fitr / Parshuram Jayanti)		
SUNDAY - 08.05.2022		
5	May (9-14)	Example Programs
		The Block DO Loop
		Program examples
		Count Controlled DO Loop
		Rules to be followed in writing DO Loops
		Example Programs
SUNDAY - 15.05.2022		

6	May (16-21)	Logical constants,variables
		Logical expressions
		Precedence rules for logical operators
		Example Programs
		The case statement
		Programs
SUNDAY - 22.05.2022		
7	May (23-28)	Test
		Function Subprograms
		Syntax rules for function subprograms
		Generic Functions
		Example Programs
		Subroutines
SUNDAY -29.05.2022		
8	May (30-31) June (1, 3-4)	Internal Procedures
		Example Programs
		Arrays variables
		Use of multiple subscripts
		DO type notation
HOLIDAY - 02.06.2022 (Maharana Pratap Jayanti)		
SUNDAY - 05.06.2022		
9	June (6-11)	Terminology Used for multidimensional arrays
		Use of arrays in DO Loops
		Example Programs
		Format Description
		Multi-Record Formats
		Printing Character strings
SUNDAY - 12.06.2022		
10	June (13, 15-18)	Generalized Input/Output statements
		Example Programs
		The Character Data Type
		Manipulating Strings
		Comparing Character Strings
HOLIDAY -14.06.2022 (Sant Kabir Jayanti)		
SUNDAY - 19.06.2022		
11	June (20-25)	Example Programs
		Procedures with Multi-Dimensional Arrays
		Example Programs
		Temporary Arrays in Procedures
		Functions as Dummy Arguments
		Example Programs
SUNDAY - 26.06.2022		

12	June (27-30)	Defining Derived Types
		Using Derived Types
	July (1-2)	Using Derived Types in Procedures
		Using Derived Types in Arrays
		Example Programs
		Creating a Sequential File
SUNDAY - 03.07.2022		
13	July (4-9)	Searching a Sequential File
		Example Programs
		Updating a Sequential File
		Direct Access Files
		Example Programs
		The Pointer Data Type
SUNDAY & HOLIDAY (Id-ul-Zuha (Bakr-Id) - 10.07.2022		
14	July (11-16)	Creating a list Data Structure
		Example Programs
		Abstract data Type complex
		Example Programs
		Kind Specification for reals
		Use of complex Quantities
SUNDAY - 17.07.2022		
15	July (18-19)	Example Programs
		Revision
20.07.2022 - EXAMINATION ONWARDS		