I.B. (PG) COLLEGE, PANIPAT

SESSION 2020-2021

Weekly Lesson Plan (Even Semester) **PG** **(2nd Semester)**

Name of the Paper:-__Differential equation__ **Class: _MSC(P)_**

Name of the Teachers (Section wise): _MANISH KUMAR_____

WEEK	DATE	TOPICS
1	April (19-20) , (22-24)	Linear second order equations
		Self adjoint equation of second order
		Superposition principal
		Ricatti equation
		Theorems
HOIDAY - 21.04.2021 (Ram Navami)		
SUNDAY & Holiday (Mahavir Jayanti) 25.04.2021		
2	April (26 -30)	Pruffer transformations
		Examples based on ricatti equation
		Zeroes of a solution
		Theorems
	May (Ist)	Theorems
SUNDAY - 02.05.2021		
3	May (03 - 08)	Oscillatory and non oscillatory equations
		Theorems
		Theorems
		examples
		Abels formula
SUNDAY - 09.05.2021		
4	May (10-13) (15)	Lagrange identity
		Green formula
		examples based on topic
		Common zeros of solution and their linear dependence
		Class discussion
HOLIDAY - 14.05.2021 (Id-ul-Fitr / Parshuram Jayanti)		
SUNDAY - 16.05.2021		
5	May (17-22)	Sturm theory
		Sturm seperation theorem
		sturm fundamental comparision theorem
		Corollaries of above theorems
		Elementary linear oscillations
		Theorems

SUNDAY - 23.05.2021		
6	**May (24-29)**	Autonomous system the phase plane
		Paths and Critical points
		Types of Critical points
		NODE,CENTRE
		Saddle point, Spiral point
SUNDAY - 30.05.2021		
7	**May (31)** **June (1 - 5)**	Stability of critical points
		Critical points and paths of linear systems
		Basic theorems and their applications
		Continue
		Class discussion
		Class test
SUNDAY - 06.06.2021		
8	**June (7-12)**	Critical points and paths of non linear systems
		Basic theorems and their applications
		Liapunov function
		Liapunov direct method
		Theorems
		Theorems
SUNDAY & Holiday (Maharana Pratap Jayanti) 13.06.2021		
9	**June (14 -19)**	Limit cycles and periodic solutions
		Limit cycles and periodic solutions
		Existence and non existence
		Bendixsons non existence criterion
		Half path or semoorbit
		limit set
SUNDAY - 20.06.2021		
10	**June (21-23) (25 - 26)**	Poincare benedixson theorem
		Index of a critical point
		Secondary order boundary value problem
		Periodic boundary condition
		Regular,Singular,Non linear boundary value problem
HOLIDAY - 24.06.2021 (Sant Kabir Jayanti)		
SUNDAY - 27.06.2021		
11	**June (28-30)** **July (1-3)**	Sturm Liouville BVP
		Some definitions
		Eigen value and eigen function
		Orthogonality of functions
		Green functions
		Theorems

SUNDAY - 04.07.2021		
12	**July (5 - 10)**	Applications of boundary value problems
		Use of implicit function theorems
		fixed point theorems for periodic solution
		Theorems
		Theorems
		Class discussion
SUNDAY - 11 .07.2021		
13	**July (12)**	Class test

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SESSION 2020-2021

Weekly Lesson Plan (Even Semester) PG (2nd Semester)

Name of the Paper:-___Real analysis -II__ Class: _M.sc Previous__

Name of the Teachers (Section wise): _Komal_____

WEEK	DATE	TOPICS
1	April (19-20) , (22-24)	introduction to Lebesgue outer measure
		Elementary properties of outer measure
		Measurable sets and their properties
		Lebesgue measure of sets of real numbers
		doubt class
HOIDAY - 21.04.2021 (Ram Navami)		
SUNDAY & Holiday (Mahavir Jayanti) 25.04.2021		
2	April (26 -30)	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
	May (Ist)	doubt class
SUNDAY - 02.05.2021		
3	May (03 - 08)	Lebesgue measurable functions and their properties
		characterstic 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 - 09.05.2021		
4	May (10-13) (15)	Borel measurability of a function
		Almost uniform convergence
		Egoroff's theorem, lusin's theorem
		convergence in measure
		F.Riesz theorem that every sequence which is convergent in measure has an almost everywhere convergent subsequence.
HOLIDAY - 14.05.2021 (Id-ul-Fitr / Parshuram Jayanti)		
SUNDAY - 16.05.2021		
5	May (17-22)	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
		Lebsegue integral as a genralization of the Riemann integral

SUNDAY - 23.05.2021		
6	**May (24-29)**	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
		Famous lemma
SUNDAY - 30.05.2021		
7	**May (31)** **June (1 - 5)**	Monotone convergence theorem
		Integration of series
		the general Lebsegue integral
		Lebesgue convergence theorem
		Lebesgue convergence theorem (continued)
		doubt class
SUNDAY - 06.06.2021		
8	**June (7-12)**	Differentiation and integration :
		Differentiation of monotone functions
		Vitali's covering theorem.
		the four dini derivatives
		Lebesgue differentiation theorem
		doubt class
SUNDAY & Holiday (Maharana Pratap Jayanti) 13.06.2021		
9	**June (14 -19)**	Assignment 2
		surprise test
		functions of bounded variation
		representation of bounnded variation as difference of montone functions
		doubt class
		Differentiation of an integral
SUNDAY - 20.06.2021		
10	**June (21-23)** **(25 - 26)**	Absolutely continuous functions
		introduction to convex functions
		theorem based on convex functions
		jenson's inequality
		doubt class
HOLIDAY - 24.06.2021 (Sant Kabir Jayanti)		
SUNDAY - 27.06.2021		
11	**June (28-30)** **July (1-3)**	test of section 3
		re- vision of chapter 1
		Assignment
		introduction to Lp spaces
		examples of Lp spaces
		doubt class

SUNDAY - 04.07.2021		
12	**July (5 - 10)**	Minkowski inequality
		Holer inequality
		completeness of lp spaces
		Bounded linear functionals on the Lp spaces
		Riesz representation theorem
		doubt class
SUNDAY - 11 .07.2021		
13	**July (12)**	test of section 4

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SESSION 2020-2021

Weekly Lesson Plan (Even Semester) **PG** **(2nd Semester)**

Name of the Paper: Computer programming (theory) **Class: Msc. (P)**

Name of the Teachers (Section wise): Mansi Bansal

WEEK	DATE	TOPICS
1	April (19-20) , (22-24)	Evolution of Fortran
		Constants
		Scalar variables
		Declaring variable names
		Implicit Declaration
HOIDAY - 21.04.2021 (Ram Navami)		
SUNDAY & Holiday (Mahavir Jayanti) 25.04.2021		
2	April (26 -30)	Named constants
		Arithmetic Operators and Mode of expression
		Integer expression
		Real expression
	May (Ist)	Procedure of Operations in expressions
		Examples of arithmetic expressions
SUNDAY - 02.05.2021		
3	May (03 - 08)	Assignment statement
		Defining variables
		Mixed mode expression
		Intrinsic functions
		List-directed input statement
		List-directed output statement
SUNDAY - 09.05.2021		
4	May (10-13) (15)	Realtional operators
		If construct-ist form
		If construct-2nd form
		If construct-3rd ,4th form
		Do loop
HOLIDAY - 14.05.2021 (Id-ul-Fitr / Parshuram Jayanti)		
SUNDAY - 16.05.2021		
5	May (17-22)	Count control do loop
		Problem discussion
		Logical Constants ,variables and expressions
		Precedence rules for Logical Operators
		Some examples of use of logical expressions
		some programming examples

SUNDAY - 23.05.2021		
6	**May (24-29)**	Function subprogram
		Syntax rule for function subprogram
		programming examples of function subprogram
		Genric function
		Programming examples
		Subroutine
SUNDAY - 30.05.2021		
7	**May (31)** **June (1 - 5)**	Subroutine examples
		Subroutine examples
		Internal procedures
		Programming examples
		Array variables
		Use of multiple subscripts
SUNDAY - 06.06.2021		
8	**June (7-12)**	Do type notation for Input/output statements
		Terminology used for Multidimensional arrays
		Use of array in Do loops
		Whole array operations
		Programming examples
		Problem discussion
SUNDAY & Holiday (Maharana Pratap Jayanti) 13.06.2021		
9	**June (14 -19)**	Format Description for Numerical data:Read statement
		Format description for print statement
		Multi-Record formats
		Printing Character Strings
		Reading and Writing logical quantities
		Generalized input/output statement
SUNDAY - 20.06.2021		
10	**June (21-23)** **(25 - 26)**	Character Data type
		Maniplating strings
		Comparing character strings
		Derived data type
		Using derived types in procedures
HOLIDAY - 24.06.2021 (Sant Kabir Jayanti)		
SUNDAY - 27.06.2021		
11	**June (28-30)** **July (1-3)**	Using derived types in arrays
		Problem discussion
		Creating a sequential file
		Searching a sequential file
		Updating a sequential file
		Direct access file

SUNDAY - 04.07.2021		
12	July (5 - 10)	Enquire statement
		Pointer data type
		Pointer data type
		Modules
		Features of Fortran 90
		Features of Fortran 95
SUNDAY - 11 .07.2021		
13	July (12)	Problem discussion

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SESSION 2020-2021

Weekly Lesson Plan (Even Semester) PG (2nd Semester)

Name of the Paper:- Complex Analysis 2 **Class: M.Sc. Maths (Previous)**

Name of the Teachers (Section wise): SOURAV

WEEK	DATE	TOPICS
1	April (19-20) , (22-24)	basic definaton and results
		metric space basis
		space of analytics function
		completness
		property of completeness
HOIDAY - 21.04.2021 (Ram Navami)		
SUNDAY & Holiday (Mahavir Jayanti) 25.04.2021		
2	April (26 -30)	hurwitz,s theorem
		montel, theroem
		their corolary
		riemann mapping theorem
	May (Ist)	infinite product
		revision class
SUNDAY - 02.05.2021		
3	May (03 - 08)	weierstrass theorem
		fact. Of sine function
		gamma function
		properties of gamma
		functional equation
		revision class
SUNDAY - 09.05.2021		
4	May (10-13) (15)	integral version of gamma equation
		over all revision
		class test
		reimann zeta function
		functional equation
HOLIDAY - 14.05.2021 (Id-ul-Fitr / Parshuram Jayanti)		
SUNDAY - 16.05.2021		
5	May (17-22)	mittag-leffler theorem
		analytic contination
		uniqueness of direct analytic
		uniqueness along a curve
		power series
		revision class

SUNDAY - 23.05.2021		
6	**May (24-29)**	schwartz reflection princple
		revesion class
		class test
		monodromy theorem
		consequence of monodromy
		harmonic function as a disk
SUNDAY - 30.05.2021		
7	**May (31)**	poission kernal
	June (1 - 5)	harnack,s inequatity
		harnack,s theorem
		canonocal product
		jenson's formula
		revision class
SUNDAY - 06.06.2021		
8	**June (7-12)**	poission jensen formula
		hadmARD theorem
		dirchlet problem
		problem orf above
		green function
		revision class
SUNDAY & Holiday (Maharana Pratap Jayanti) 13.06.2021		
9	**June (14 -19)**	class test
		order of entire function
		exponent of convergence
		borel therorem
		problems
		revision class
SUNDAY - 20.06.2021		
10	**June (21-23) (25 - 26)**	hadmard fact. Theorem
		range of analytic function
		bloch theorem
		problems day
		revision class
HOLIDAY - 24.06.2021 (Sant Kabir Jayanti)		
SUNDAY - 27.06.2021		
11	**June (28-30)**	little picard theorem
		schottky theorem
		montel theorem
	July (1-3)	problems
		practise question
		revision class

SUNDAY - 04.07.2021		
12	**July (5 - 10)**	great picard theorem
		univalant function
		bicberbach's conecture
		one seven forth theorem
		revision class
		complete revision
SUNDAY - 11 .07.2021		
13	**July (12)**	problems solutions

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SESSION 2020-2021

Weekly Lesson Plan (Even Semester) PG (2nd Semester)

Name of the Paper:- Advanced Abstract Algebra Class: M.sc. (P)

Name of the Teachers (Section wise): Mansi Bansal

WEEK	DATE	TOPICS
1	April (19-20) , (22-24)	Commutators
		commutators identities
		commutator subgroup
		results on commutators
		results on commutators
HOIDAY - 21.04.2021 (Ram Navami)		
SUNDAY & Holiday (Mahavir Jayanti) 25.04.2021		
2	April (26 -30)	Higher Commutator
		Three Subgroup lemma of P.Hall
		Central series of a group G
		Central series of a group G
	May (Ist)	Central series of a group G
		Nilpotent Group
SUNDAY - 02.05.2021		
3	May (03 - 08)	Nilpotent Group
		Subgroup and Factor group of a Nilpotent Group
		Centre of a Nilpotent group
		Finite Nilpotent group
		Lower central series
		Lower central series
SUNDAY - 09.05.2021		
4	May (10-13) (15)	Upper central series
		Upper central series
		Properties of lower and upper central series
		Properties of lower and upper central series
		Subgroup of a finitely generated nilpotent group
HOLIDAY - 14.05.2021 (Id-ul-Fitr / Parshuram Jayanti)		
SUNDAY - 16.05.2021		
5	May (17-22)	Subgroup of a finitely generated nilpotent group
		Sylow subgroup of a nilpotent group
		Problem discussion
		Linear transformation
		Invarient subspaces of vector space
		Invarient subspaces of vector space

SUNDAY - 23.05.2021		
6	**May (24-29)**	Reduction of a linear transformation to triangular form
		Similar linear transformation
		Nilpotent transformations
		Uniqueness of the invariants of a nilpotent transformation
		Primary decomposition theorem
		Jordan blocks and jordan canonical forms
SUNDAY - 30.05.2021		
7	**May (31)**	Companion matrix of a polynomial
	June (1 - 5)	Rational canonicals form of a linear transformation and its eleme
		Rational canonicals form of a linear transformation and its eleme
		Problem discussion
		Modules
		Submodules and Quotient modules
SUNDAY - 06.06.2021		
8	**June (7-12)**	Module generated by a non-empty subset of R-module
		Finitely genetrated modules
		Cyclic modules
		Idempotents
		Homomorphism of R-module
		Fundamental theorem of homomorphism of R-mpodule
SUNDAY & Holiday (Maharana Pratap Jayanti) 13.06.2021		
9	**June (14 -19)**	Direct sum of modules
		Endomorphism rings
		Simple modules
		Semi-simple modules
		Finitely generated free module
		Rank of a finitely generated free module
SUNDAY - 20.06.2021		
10	**June (21-23) (25 - 26)**	Submodules of free module s of finite rank over PID
		Problem discussion
		Endomorphism ring of a finite direct sum of modules
		Ascending and descending chains of sub modules of an R-module
		Ascending and descending chains of sub modules of an R-module
HOLIDAY - 24.06.2021 (Sant Kabir Jayanti)		
SUNDAY - 27.06.2021		
11	**June (28-30)**	Ascending and descending change condition
		Noetherian modules
	July (1-3)	Noetherian modules
		Noetherian rings
		Finitely co-generated modules
		Artinian modules

SUNDAY - 04.07.2021		
12	**July (5 - 10)**	Artinion rings
		Nil and Nilpotent ideals
		Hilbert Basis theorem
		Structure theorem of finite Boolean rings
		Wedeerburn-Artin theorem
		Problem discussion
SUNDAY - 11 .07.2021		
13	**July (12)**	Revision