M.Sc (MATHS) III Sem (ATKT)

Pages
Date

PAPER-I

INTEGRATION THEORY AND FUNCTIONAL ANALYSIS

Note: Attempt all questions -

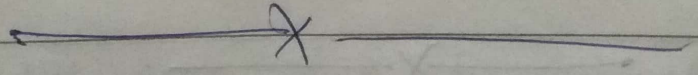
1. State and prove Jordan decomposition Theorem.

2. write the statement of Fubinis Theorem.

3. Define Normed space and Banach space.

4. write the statement of F-Riesz's lemma

5. Explain Algebric dual space of X



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M.Sc (MATHS) III Sem. (ATKT)

Pages
Date

PAPER-II

PARTIAL DIFFERENTIAL

Note:- Attempt all questions.

1. Define Transport Equation.

2. write the Hamiltonian and equation for the simple pendulum.

3. write the Statement of poisson Darboux Equation

4. State and Prove tax-oleinic formula.

5. Prove that

$$(u * v)^{\wedge} = (2\pi)^{n/2}\, \hat{u}.\hat{v}$$

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Pages

Date

PAPER - III

THEORY OF LINEAR OPERATOR - I

Note :- Attempt all questions.

1. Define linear operator.

2. Define a Banach algebra and compact linear operator

3. Discuss Fredholm alternative for integral equations

4. Let $T: H \to H$ be a bounded self adjoint linear operator on a complex Hilbert space H then all the eigen value of T are real.

5. Let P_1 and P_2 be Projections on a Hilbert space H. Show that their sum $P_1 + P_2$ is a projection on H iff $Y_1 = P_1(H)$ and $Y_2 = P_2(H)$ are orthogonal.

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Page
Date

PAPER-IV

OPERATIONS RESEARCH-I

Note: Attempt all questions -

1. What some applications of operations research in industry.

2. Write the advantages of L.P.P (Linear programming problem)

3. Solve by simplex Method.

$$\text{Max } Z = 3x_1 + 2x_2$$

Subj. to constraints

$$x_1 + x_2 \leq 4$$

$$x_1 - x_2 \leq 2$$

where $x_1, x_2 \geq 0$

4. Write the general rules for converting any Primal to Dual.

5. Solve

	a	b	c	d
A	17	25	26	20
B	28	27	23	25
C	20	18	17	14
D	28	25	23	19

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M.Sc (MATHS) III sem (ATKT)

Pages

Date

PAPER-V

FUNDAMENTAL OF COMPUTER SCIENCE -I

Note: Attempt all questions -

1. what is Inheritance? write the types of inheritance with neat and clean diagram. write single Inheritance program in c++.

2. what is Constructor? write about the types of constructors and also write the default constructor program in c++.

3. what is polymorphism in c++. write with an example.

4. what is OOPS in c++? write its benefits.

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