

The Islamia University of Bahawalpur

Department of Applied Psychology

Mathematics(PSY-01103)

Course instructor	Humera Yasmeen
Title	Mathematics
Credit hours	03
Level	BS
Semester	6 th

Course Design and Organization

Week	Session	Topic
01	01	Number system: Introduction of mathematics.
	02	Numbers, Natural numbers, Whole numbers, Integers, Rational and irrational numbers, real number, composite number, prime number.
02	03	Properties of real number, Addition & multiplication Laws, LCM, HCF.
	04	Complex numbers, conjugate of complex number , power of I, absolute value, operation of complex number(Addition,subtraction,multiplication,division)
03	05	Sets, Functions and Groups: Set, order of set, proper and improper sets, equal and equivalent sets, including exercise.
	06	Finite set, infinite set, power set, De Morgan's Law, exercise also.

04	07	Union and intersection of two sets, disjoint set, overlapping sets, complement of a set, difference of two sets, exercise also.
	08	Matrices and Determinants: Matrix, order of matrix, row and column, square matrix, rectangular, diagonal, scalar, identity or unit matrix, null matrix, exercise also.
05	09	Equal matrix, upper triangular matrix, lower triangular, Triangular matrix, Symmetric matrix, skew symmetric matrix, exercise also. Singular matrix, non-singular, Crammer's rule, exercise also.
	10 11	Gauss Elimination method, Exercise include. Quadratic Equations: Quadratic equation, factorization(Completing square and by Quadratic formula), Derivation of Quadratic formula, exercise also.
07	12	PCP: Factorial, permutation, combination, exercise include.
	13	Statistics: Statistics, Arithmetic mean, geometric mean.
08	14	Harmonic mean, Median, Mode, Prove $A.M > G.M < H.M$, exercise included.
	15	Trigonometry, including exercise.
09	16	Mid Term.
10	17	Functions & Limits: Introduction, Domain and Range, Linear function, Identity function.
	18	Constant functions, even and odd functions, including exercise.
	19	Differentiation:

11	20	Introduction, Derivation by 1 st principal, Quotient Rule
	21	Product Rule, Derivation of Trigonometric Functions
		General Formulas of Derivation ,Including Exercise
12	22	Integration: Introduction, Theorems of Integration, Integration of Trigonometric Functions
	23	General Formulas of Integration, Integration by Limits, Integration of Exponential values, Including Exercise
13	24	Analytic Geometry: Introduction, Distance Formula, Slope
	25	Point slope form of equation of Straight Line, Including Exercise
14	26	Linear Inequalities: Introduction, Corner point, Feasible solution Set
	27	Objective Function, Optimal Solution, including Exercise
15	28	Vectors: Introduction, Unit Vector, Magnitude of a Vector, Cross Product, Properties of Cross Product
	29	Dot Product, Properties of Dot Product, including Exercise
	30	Assignments: Least Cost Method, North West Corner Method
	31	Vogel Approximation Method
	32	Revision

