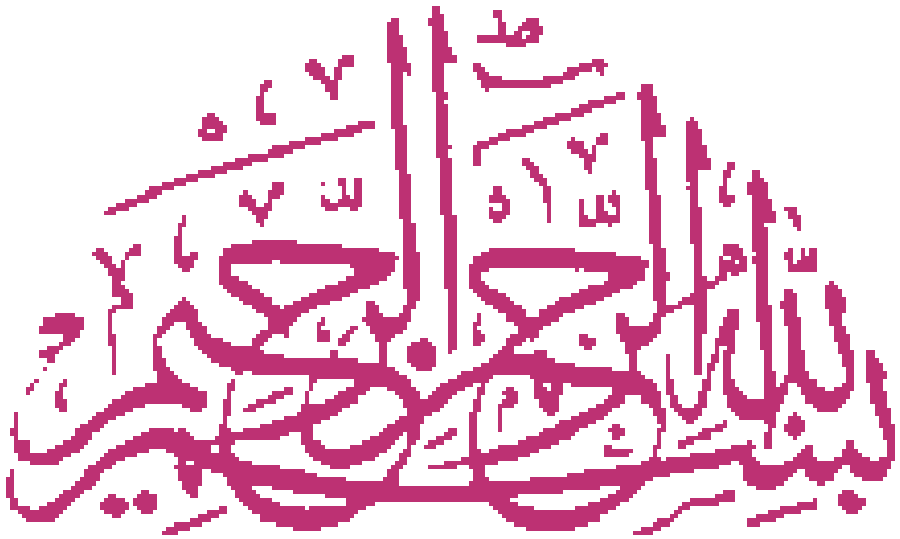


BOTANY

PART I & II COURSE OUTLINE

B.Sc Botany Course Structure

Part-I Total Marks = 75

Paper	Title	Theory Marks	Practicals Marks	
A	**Plant Biodiversity**	30	**15**	
B	**Cell Biology, Genetics and Evaluation**	30		
	Total Marks	60	**15**	**75**

Part-II Total Marks = 75

Paper	Title	Theory Marks	Practicals Marks	
C	**Ecology and Physiology**	30	**15**	
D	**Plant Systematics, Anatomy and Development**	30		
	Total Marks	60	**15**	**75**

Paper-A: **<u>Plant Biodiversity.</u>**

Definition, Scope and classification of the Kingdoms. Basic concepts of evolution in Plant diversity.

1. **Viruses**

   a). General Structure, Types and Reproduction of Viruses.
   b). Viral Diseases and their Economic Importance.

2. **Kingdom Monera / Prokaryota (Bacteria and Cynobacteria).**

   General Structure, Reproduction, Classification and Economic Importance (Such as Nitrogen Cycle and Industrial Role).

3. **Kingdom Protista/ Protoctista (Algae)**

   a).General structure, Occurrence, Reproduction and Economic Importance.
   b). Classification of Algae with specific examples.

   i. Chlorophyta: Volvox. ii. Charophyta: Chara.
   iii. Vaucheriophyta: Vaucheria. Iv. Bacillariophyta: Pinnularia.

v. Phaeophyta: Laminaria.

4. **Kingdom Fungi.**

a) General Structure, Life Cycle, Classification with specific examples:

i. Plasmodiophormycota Plasmodiophora.
ii. Oomycota Pythium.
iii. Ascomycota Penicillum, Saccharomyces, Altimaria
iv. Basidomycota Ustilago, Puccinia and Agaricus.

b). Role of Fungi in Agriculture, Diseases of major economic crop Plants:
Rusts, Smuts, Downy and Powdery mildews, Damping off, Root rots in food and industry.

5. **Lichens**

General account, Structure and Life History of Physica.

6. **Kingdom Plantae.**

a) Bryophyta (atrachhphyta)

General account, Reproduction, Classification, Affinities and ecological importance with special reference to the Life Cycle of Anthoceros, Porella and Polytrichum.

b). Pteridophyta (Tracheophyta).

General account, Structure and Life cycle and biological importance with specific examples.

i). Psilopsida: Psilotum.
ii). Lycopsida: selaginella.
iii).Sphenopsid: Equisetum.
iv). Pteropsida: Polypodium, Adiantum and Marsilea

c). Gymnospermae (Seed Plants).

General account with reference to structure and life history of Cycas, Pinus and Ephedra and their affinities.

d). Angiospermae.
Introduction

Practical

1. General culturing, maintenance, preservation and staining of microorganism.
2. Study of the morphology and Reproductive structures of the types mentioned in Theory paper.
3. Identification of various types mentioned from prepared slides and fresh collection.
4. Collection of diseased specimens of plants and their identification.

Books Recommended

1. Bold.H.C, Morphology of Plants, 2nd Ed. Harper & Row, N.Y.
2. Hafiz A. (1986). Plant diseases. Pakistan Agriculture Research Council, Islamabad, Pakistan.
3. Lee, R.E .1999. Phycology. Cambridge University Press, UK.
4. Ross, F.C 1994. Introduction to Microbiology, John Willy, USA.
5. Pandey, S.N 1994 Text book of Botany Vol-II S.Chand & Company.

Paper-B: **Cell Biology, Genetics and Evolution**

Structure and Functions of Bio-Molecules, Carbohydrates, Lipids, Proteins, Nucleic Acids.

1. Cell: The physico-chemical nature of plasma membrane and cytoplasm.

2. The ultra structure of plant cell with a brief description and functions of the following Organelles.

i. Endoplasmic Reticulum.
ii. Plastids
iii. Mitochondria.
iv. Ribosomes.
v. Dictyosomes
vi. Vacuole.
vii. Micro bodies (Glyoxysomes+Peroxysomes).

3. Nucleus:

Nuclear membrane, Nucleus, Ultra structure and Morphology of Chromosomes, Karyotype analysis.

4. Reproduction in somatic and embryonic cell, Mitosis and Meiosis, Cell cycle.

5. **Chromosomal aberrations.**

    i. Changes in the No. of Chromosomes. Aneuplioidy and Euploidy.
    ii. Changes in the Structure of Chromosomes, Deficiency, Duplication, Inversion and Translocation.

Practicals:

1. Study of Cell Structure using compound microscope and elucidation of ultra – structure from Electron Microphotograph.
2. Measurement of Cell size.
3. Study of Mitosis and Meiosis by Smear/ Squash method and from Prepared Slides.
4. Study of Chromosomes, morphology and variation in chromosome numbers.
5. Extraction and estimation of Carbohydrates, Protein, RNA, DNA from Plant sources.

GENETICS

1. Introduction, Scope and brief History of Genetics. Mendalian inheritance. Laws of Segregation and Independent Assortment, Back cross and Test Cross, Dominance and Incomplete Dominance.
2. Sex linked inheritance, Sex Linkage in Drosophilae and Man (Color Blindness) XO, XY, WZ mechanism, Sex limited and Sex linked characters, Sex Determination.
3. Linkage and crossing over: Definition Linkage group, Construction of linkage maps, and detection of linkage.
4. Molecular genetics: DNA replication .Nature of gene, Genetic code, Transcription, Translation, Protein synthesis, regulation of Gene expression (e.g. / ac operon).
5. Transmission of genetic material in Bacteria: Conjugation and gene recombination in E. Coli, Transduction and Transformation.
6. Principles of Genetic Engineering/ Biotechnology; Basic Genetics Engineering Techniques.
7. Application of genetics in Plant improvements: Induction of Genetic variability (Gene mutation, Recombination) Physical and chemical mutagens, Selection hybridization and Plant breeding techniques, Establishment of varieties, and release of new verities.
8. Introduction of genetics conservation.
9. Evolution.

Practical

1. Genetically problems related to transmission and distribution of genetic materials.
2. Identification of DNA in plant material: Carmine orcein staining
3. Study of Salivary Gland Chromosomes of Drosophila.

Books Recommended

1. Hoelzel A.R. 2001. Conservation Genetics. Khuwar Academics Publishers.
2. Lodish, H.2001. Molecular Cell Biology.W.H.Freeman and Co.
3. Strickberger, M.V., (1988).Genetics, Mc Millan Press Ltd. London.
4. Sinha, U. and Sinah, S. (1988). Cytogenesis Plant Breeding and Evolution, Vini educational Books, New Delhi.
5. Lewin, R.1997. Principles of Human Evolution. Blackwell Science.

Part-II

Paper: C **ECOLOGY and PHYSIOLOGY**

1. **ECOLOGY**
    1. **Concepts of ecology.**
    2. **Brief History of Ecology (General, Pakistan).**
    3. **Ecophysiology.**

a). Light and Temperature response:

i). Quality of Light.
ii). Variation in Light (Temperature).
iii).Ecophysiology responses.

b). Edaphology:

i). Brief introduction of Soil forming process.
ii). Texture, structure and Water.
iii).Chemical Properties &
iv).Biological components: Soil Organism, Organic matters.

c). Water.

i). Precipitation: Kinds & affectivity

ii). Distribution of vegetation in relation to moisture.

d). Wind: Ecological importance of Wind.

4. **Population Ecology**.

A brief introduction, history and background. Seed dispersal, Seed bank, Demography, Reproductive strategy.

5. **Community Ecology.**

- **i.** Concepts of Plant community-attributes.
- **ii.** Sampling Methods.
- **iii.** Succession-history, Concepts, development and modern theories of succession.
- **iv.** Brief concepts of productivity.
- **v.** Local vegetation.

6. **Ecosystem**.

- **i.** Definition and background.
- **ii.** Ecological energetic.
- **iii.** Biogeochemical cycle (hydrologic and Nitrogen cycle).

7. **Applied Ecology.**

Aridity, Biodiversity, Conservation, Water logging and Salinity, Pollution, Erosion, Desertification, Management.

Practical

1. Measurement of light and Temperature.
2. Effect of Light and Temperature on seed germination.
3. Determination of Soil, Texture by hydrometer method.
4. Determination of maximum water holding capacity.
5. Determination of Carbonates, Electrical conductivity and pH in Soil & Water.
6. Measurement of Wind Velocity.
7. Population demographic techniques.
8. Measurement of Vegetation by Quadrate and plot less methods.
9. Determination of productivity by harvest method.
10. Several trips to ecologically diverse vegetations.

Books Recommended

1. Ricklefs, R.E,2000. Ecology. W.H. Freeman& Co.UK.
2. Ricklefs, R.E,2000. the Economy of nature W.H, Freeman& Co.UK.
3. Barbour, M.G.J., H Burke and W.D.,Pittus 1999, Terrestrial plant Ecology.
4. Smith O.D 1998,Ecology. Theories and Applications Prentic Hall, New Jersy.
5. Smith R.L 1996,Ecology and Field Biology: Addision Welsay Longman,Inc, New York.
6. Townsend, C.R, Harper, J.L and Begon M.E 2000. Essential of Ecology.Black well scientific publications,UK.

Physiology.

1. **Types and properties of solution**. Electrolytes and non-electrolytes.SI units for expressing concentration of solutions, Acids, Bases, and Salts.pH definition of buffers and their role in biological systems. Colloidal systems, their nature, properties, and biological significance.
2. **Water relations** (water potential, osmotic potential, pressure potential, Matric potential).Absorption and translocation of water. Transpiration, factors affecting transpiration. Stomatal structure and functions.
3. **Mineral nutrition:** Soil as a source of minerals. Passive and active transport of nutrients. Essential mineral elements, their role and deficiency symptoms with emphasis on N, K, P & Ca.
4. **Enzymes:** Definitions, nature of classification and properties.
5. **Photosynthesis:** The process; absorption and action spectra. Mechanism; light reactions (electron transport and photophosphorylation) and dark reactions (Calvin cycle). Factors affecting this process; concept of limiting factors, products of photosynthesis.
6. **Respiration:** definition and mechanism, Glycolysis, Kreb's cycle. Electron transport system and oxidative Phosphorlyation. Anaerobic respiration. Respiratory substrates and respiratory quotients.
7. **Nitrogen Metabolism:** Biological Nitrogen fixation.
8. **Growth:** Definition, role of auxins, Gibberellin, cytokinins, abscisic acid and ethylene in controlling growth. Introduction to plant tissue culture.

9. **Photoperiodism:** Definition, Historical background, short day, long day and day neutral plants. Role of phytochromes and hormones in Photoperiodism.
10. **Dormancy:** Definition and causes of seed dormancy, Method of breaking seed dormancy.
11. **Vernalization:** Annual and biennial forms- Hormonal concept and their development theory.
12. **Plant movements:** Tropic movements Phototropism, Geotropism and their mechanism. Nastic movements.

Practical:

1. Preparation of solutions of specific normality of acids/ base, salts, sugars, molal and molar solutions and their standardization.
2. Determination of uptake of water by swelling seeds when place in Sodium Chloride solution of different concentrations.
3. Measurement of leaf water potential by the dye method.
4. Determination of Temperature at which beetroot cells lose their permeability.
5. Determination of the effects of environmental factors on the rate of transpiration of a leafy shoot by means of a photometer / by cobalt chloride paper method.
6. Tests of sugars (reducing and non-reducing) Glucose, sucrose, maltose, fructose.
7. Chemical tests for the following cell constituents:

    I. Starch.
    II. Cellulose.
    III. Lignin.
    IV. Proteins.

8. Extraction Chlorophyll from the leaves and separation of component pigments on a paper chromatogram. Study of absorption spectra using spectrophotometer.
9. Comparison of the effects of green, red and blue – colored light on the amount of Oxygen evolved by a photosynthesizing plant.
10. Estimation of Oxygen utilized by a respiring plant by Winkler's method.
11. Extraction of amylase from germinating wheat seeds and study of its effect on starch breakdown.
12. Measurement of Carbon Dioxide evolution during respiration of germinating seeds by the titration method.
13. Determination of leaf area index.
14. Measurement of growth by leaf area increase method.
15. Study of different stages of seed germination.

Books Recommended.

1. Ihsan Elahi (1995). Plant Physiology, Biochemical processes in plants, UGC Press.

2. Witham & Devlin, 1989. Exercises in Plant physiology, AWS Publishers, Boston.
3. Taiz, L., and Zeiger, e., 1998. Plant physiology.2nd Ed. Sinauers Publ: Co. Inc Calif.
4. Salbury, F.B and Ross .C.B.1999.Plant physiology.5th Edition .Wedsowth publishing Co.Belmont C.A.
5. W.B Hopkins.1999. Introduction to plant physiology.2nd. John Wiley & sons New York.

Paper: D **PLANT SYSTEMATICS, ANATOMY & DEVELOPMENT.**

Plant Systematics.

1. **Introduction to Plant Systematics**, its aims, objectives and importance.
2. **Classification:** Importance, brief history, introduction, various systems of classification. Brief Account.
3. **Brief introduction to** nomenclature, importance of Latin names and binomial system, with an introduction to international Code of Botanical Nomenclature (ICBN).
4. **Morphology and Photography-**a detailed account of various morphological characters of Roots, Stem, Leaf, Inflorescence, Flower, Placentation and Fruits types.
5. **Diagnostic** characters, Economic importance and distribution pattern of the following Families.

    i. Brassicaceae (Cruciferae).
    ii. Fabaceae.

iii. Rosaceae.
iv. Rutaceae.
v. Moraceae.
vi. Cucurbitaceae.
vii. Lamiaceac (Labiatae).
viii. Solanaceae.
ix. Cyperaceae.
x. Asteraceae (Compositae).
xi. Poaceae (Gramineae).

Anatomy and development.

1. Cell Wall, Structure and chemical composition.
2. Tissue and tissue system: Concept Structure and function of various tissues.
3. Structure and development of roots, stem and leaf including various type of meristem.Primary and Secondary growth of dicot stem.
4. Early development of plant body (Embryology).Capsella bursa-pastoris or Arabidopsis.

Practical:

1. Study of cross section of monocot and dicot stem.
2. Study of the simple and compound tissue in macerated and sectioned material.
3. Study of cross section of bifacial leaf.
4. To study the prepared slides of secondary growth the in dicot stem.
5. Identification of Families given in syllabus with the help of Keys.
6. Technical description of common flowering plants belonging to Families mentioned in Theory syllabus.
7. Field trips shall be under taken to study and collect local plants. Students shall submit 40 fully identified herbarium specimens.

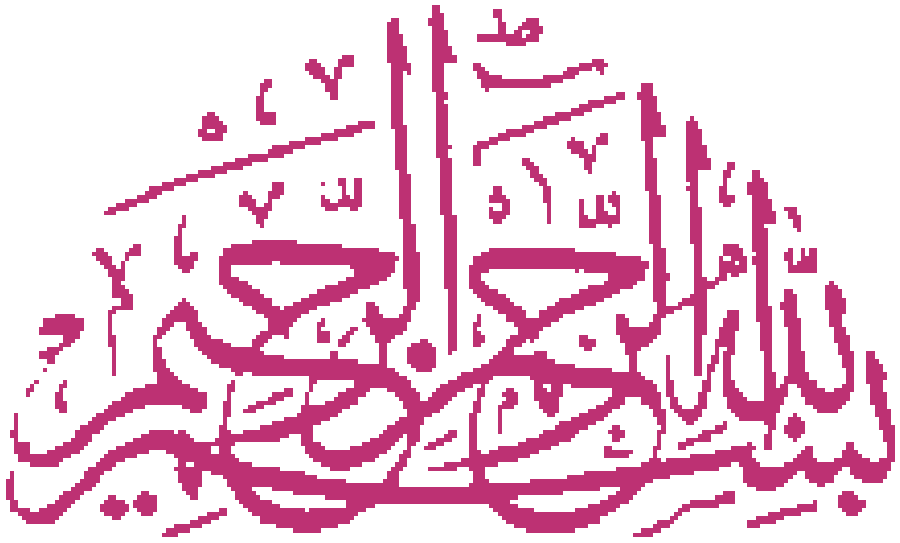
Books Recommended

1. Bold, H.C, (1997). Morphology of plants. Harper & Row, N.Y.
2. Dicksion, W.C.(2000). Integrative plant Anatomy. Academic press, UK.
3. Fahn, A.(1990). Plant Anatomy. Pergamon press, UK.
4. Masuseth, J.D (1998). An Introduction to Plant Biology: Multimedia Erihanced . Johns and Barlett Pub.UK.
5. Moore,R.C , W.D . Clarke and Vodopich, D.S. (1998).

6. Raven, P.H ., Evert , R.E and Eichhorn, S.E (1999).Biology of Plants.W.H Freeman and Company Worth Publishers.
7. Ray, P.M Steeves,T.V and Fultz, T.A (1998). Botany. Sounders College Publishing,USA.
8. Stuessy, T.F (1999). Plant Taxonomy .Columbia University Press, USA.

BSC, ZOOLOGY

PART I & II COURSE OUTLINE



B.Sc Zoology Course Structure

Part	Paper	Marks
I	A	30
-	B	30
II	C	30
-	D	30
Total Marks		120

Detail Course Outline:

Paper A: 30 Marks

INVERTEBRATES

Classification (up to orders) and general organization (structure, function, mode of life, reproduction and life cycles, adaptations. Distribution, and economic importance) of the following groups. Types wherever mentioned shall be used for understanding the structure and function problems in the groups. In addition, special topics mentioned in each group shall be dealt with in greater detail.

Protozoa:
General organization. Special aspect: Parasitism

Porifera: Type: Sycon, General Organization. Special aspect: Canal system

Coelentrata: Type: Obelia. General organization .Special aspect: Polymorphism coral and coral reefs.

Platyhelmanthes: Type: Fasciola, General organization Special aspect: Parasitic adaptations.

Aschelminthes: Diagnostic features **Type:** Ascaris.

Annelida: Type: Leech. General Organization. **Special aspect:** Colem, Metamerism, Development.

Minor Phyla: Diagnostic features only.
Mollusca: Type: Unio. General organization. **Special aspect:** Shell, Foot and Locomotion, Feeding and respiration.

Arthropoda: type: Cockroach, General organization .**Special aspect:** Feeding, Metamorphosis, Appendages and Locomotion.

Echinodermata: Type: Star fish, General organization .**Special aspect:** Skeleton and Larval forms.

PART-1 INVERTEBRATE PRACTICALS

(a) **Dissection:** Unio, Leech, Cockroach.
(b) **Examination of Prepared slides:**

a. **Protozoa:** Euglena, Volvox, Trypanosoma, Entamoeba, Forminifera, Malarial Parasite, Monocystis, Balantidium, Colpedium, Vorticella, Stentor, Nyctothmyus.
b. **Porifera:** Spicules of Sponge, Section of Sycon.
c. **Coelentrata:** Section of Hydra, Obelia (W.M).
d. **Platy helminthes:** Whole mount of Planeria, Fasciola, Taenia, and Saqinata.
e. **Aschelminthes:** T.S. of Ascharis, Hook Worm, Nemertine whole method.
f. **Annelid a:** T.S of Leech.
g. **Arthropoda:** Whole mount of Rat, Flea, and Lice.
h. **Echinoderm:** T.S of any Echinoderm.

(C) Use of Vital Stains.
(d) General survey of Invertebrates from museum specimens.

30 Marks
Paper: B

A. Cell Biology

Natural history of Cell: Small molecules of living machine:
Nucleic acids and Proteins: Enzymes Catalysis, Metabolic pathways:
Mitochondrion: Nucleus and the storage and transmission of information.
Ribosome: Conversion of chemical energy into work: Membrane systems:

B. Genetics:

Chromosome duplication and division: Duplication of genetic material and its implications: Segregation of genes: Independent assortment: Linkage and recommendation of Genes: Cytoplasm in Heredity: Mutations: Gene mutation and Protein synthesis: Genetic units of recommendation: Mutation and function.

CELL BIOLOGY AND GENETICS PRACTICALS:

a. Microscopic study and preparations:

Study of live protozoa from Lab culture.Leocosolenia, Obelia, Medusa, Marginal Lappets of Jelly fish , Mature segment of a Cestode , Nephridium of Leech, Para podium of Neries, Mouth parts of Cockroach , House fly , Mosquito, Butterfly.

b. Preparation and study of Meiosis in Grasshopper .Demonstration of DNA and RNA in Protozoan and blood cells. Chemicals tests for the identification of Carbohydrates, Lipids and Proteins.
c. Preparation and study of Chromosome from Drosophila and Chironomid larvae.

BOOKS RECOENDED:

1. Invertebrate zoology by Hegner and Engemen. Macmillan and Co, N.Y. Reprinted by National Book Foundation, Pakistan (1972).
2. Cell Structure and Function by Lowvey and Seikvitz.Reprinted by National Book Foundation, Pakistan (1972).
3. Genetics by Levine. Reprinted By National Book Foundation, Pakistan (1972).

SYLLABUS FOR ZOOLOGY Part –II

Paper: c **30 Marks**

Origin of Chordata, Comparative anatomy & function of Integumentary, Skeletal, Muscular, Digestive, Circulatory, Respiratory, Excretory, Nervous, (Including sense organs), Hormonal and reproductive systems of Chordates.

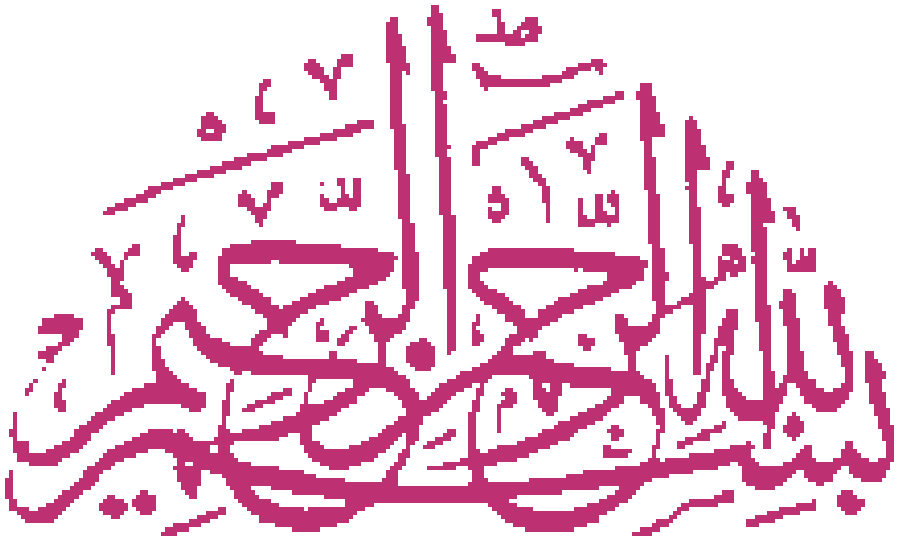
Paper: D
Biology of Chordates, Embryology & Ecology. 30 Marks.

a) Biology of Chordates: Classification of Chordates (Up to Orders)
Natural History (Mode of Life: Aquatic, Cursorial, Fossorial, Arboreal, and Aerial):

Animal migration, Parental care, breeding habits, Biting mechanism of Snakes.
Distribution of various chordates and a brief account of Dinosaurs and Archaeopteryx.

b) Embryology: Early development of Vertebrates, Egg Types, Cleavage, Blastula formation , Gastrulation & three germ Layers formation .Chronic membranes, Placantation.

b) Ecology: Course contents will be same as given in Part-II under Ecology as already Prescribed, in B.Sc Botany.



BSC, PHYSICS

PART I & II COURSE OUTLINE

B.Sc Physics Course Structure

Part-I Total Marks = 75

Paper	Title	Theory Marks	Practicals Marks	
A	MECHANICS	30	15	
B	WAVES AND OSCILLATIONS	30		
	Total Marks	60	15	75

Part-II Total Marks = 75

Paper	Title	Theory Marks	Practicals Marks	
C	ELECTRICITY AND MAGNATISM	30	15	
D	MODERN PHYSICS	30		
	Total Marks	60	15	75

Detail Course Outline:

Paper A: MECHANICS	
1. Vector Operations	
Vector in 3 dimensions	Introduction, Direction Cosines; Spherical Polar Coordinates ; Applications
Vectors derivatives and operations	Divergence and curl of a vector and gradient of a scalar.
Gradient, Divergence and Curl of a vector	Physical applications of each type, Divergence and Flux of a vector field, curl and line integral (mutual relation).
Divergence Theorem	Derivation, Physical importance, and applications to specific cases, Conversion from Deferential to integral forms
Stock's Theorem	Note: Above topics are being covered in B.Sc Mathematics course, need not teach this part of the curriculum.
2. Particle Dynamics	
Topics	Scope
Advanced applications of Newton's Law	Frictional forces: Microscopic basis of this Force
Dynamics of uniform Motion	Conical Pendulum; The rotor, Circular banked Curve
Equations of motions	Deriving kinematic equation x (v), v (t) using integrations. Constant and non constant Forces and special examples.
Time Depend wt Forces	Obtaining x(t), v(t), for this case using integration method
Effect of drag forces on motion	Applying Newton laws to obtain v(t) for the case of motion with time dependant drag (viscous) forces ;terminal velocity, Projectile motion / air resistance
Non inertial frames and Pseudo forces	Qualitative discussion to develop understanding).Calculation of pseudo forces for simple case (linearly accelerated references ,frame) Centrifugal forces as an example of pseudo, coriolis forces
Limitation of Newton Laws	(Discussion)
Suggested Level (ch:6: Resnick ,Halliday and Krane (R.H.K)	
3. **WORK AND ENERGY**	
Work done by a constant force, work done by a variable force	Essentially a review of grade-XII concepts use of integration techniques to calculate

(1-dimension)	work done, (e.g., in vibration of a spring obeying Hook's law)
Work done by a variable (2-dimensional case)	Obtaining general expression for force and applying to simple cases, For example, pulling a mass at the end of a fixed string against gravity.
Work Energy Theorem. General Proof of Work Energy Theorem	Qualitative Review of Work Energy Theorem. Derivation using Integral calculus. Basic formula and applications.
4. POWER:	
References Frames	Energy changes w.r.t. observers in different inertial frames
Suggested Level: 7 of R.H.K	
5.CONSERVATION OF ENERGY	
Conservation And Non Conservative Forces	Definition of either type of force & examples , work done in a close path, 1-D conservative system; force as the gradient of potential energy ;applications to the case of a spring and force of gravity
One Dimensional Conservative System	Obtaining velocity in terms of U and E; stable; unstable and neutral equilibrium. Analytic solution for x(t)
2,3 dimensional conservative system	Change in P.E for motion in 3-d Forces as the gradient of the potentials. Work done in 2,3 dimensional motion
Conservation of energy in a system of particles	Law of conservation of total energy of an isolated system
Suggested Level: Ch.8of H.R.K	
6. SYSTEMS OF PARTICLES	
Two particle systems and generalization to many particle systems	Centre of mass: its position velocity and equation of motion
Centre of mass of solid objects	Calculation of centre of mass of solid objects using integral calculating, C.M of (i) Uniform Rod (ii) Cylinder (iii) Sphere
Momentum changes in a system of a variable mass	Derivation of basic equation, application to motion of a rocket, (determination of its mass as a function of time).
Suggested level: Ch: 9 of H.R.K	
7. COLLISIONS	
Elastic collisions: Conservation of momentum during collision	(a)One dimensions (b) Two dimensions (Oblique collision)
Inelastic collision in centre of mass	One and two dimensions, Simple

reference frame	application; obtaining velocities in c.m. frames
Suggested Level: Ch: 10 of H.R.K	
8.ROTATIONAL DYNAMICS	
Overview of rotational Dynamics	Relationships between Linear & angular variables; Scalar and Vector form, Kinetic energy of rotation; Moment of inertia
Parallel axis theorem	Prove and illustrate; apply to simple cases
Determination of moment of inertia of various shapes. Rotational dynamics of rigid bodies	Equation of rotational motion and effects of application of torques
Combined rotational and translational motion	Rolling without slipping
Suggested Level: Ch: 12 of H.R.K	
9.ANGULAR MOMENTUM	
Angular velocity	Definition, Conservation of angular momentum, effects of torque
Stability of spinning objects	Discussion with examples
The spinning top	Effects of torque on the angular momentum, precessional motion
Suggested level Ch: 13 HRK	
10.GRAVITATION	
Review of basic concepts of gravitation Gravitational effect of a spherical mass distribution	Mathematical treatment
Gravitational potential Energy	Develop using integration techniques; calculation of escape velocity.
Gravitational field and potential	Develop the idea of filed force
Universal gravitational law	Motion of planets and Kepler's law (Derivation and explanation). Motion of Satellites. Energy considerations in planetary and Satellite motion, Qualitative discussion on application of Gravitational Law to the galaxy.
Suggested Level: Ch:16 of H.R.K	
11. BULK PROPERTIES OF MATTERS	
Elastic properties of matter	Physical basis of elasticity, Tension, Compression and sharing; Elastic modulus; Elastic limit
Suggested level. Ch: 14 H.R.K	

Fluid Statics	Variation of pressure in fluids at rest and with height in the Atmosphere
Surface Tension	Physical Basis; Role in formation of drops an Bubbles
Suggested Level: Ch 17 H.R.K	
Fluid Dynamics	General Concepts of Fluid Flow; Stream-line and the equation of continuity
Bernoulli's Equation	Derivation and some applications such as dynamic lift thrust on a rocket
Viscosity	Physical Basis; obtaining the co-efficient of viscosity, practical example of viscosity; fluid flow through a cylindrical pipe (Poisenille's Law)
Suggested Level:Ch 18 R.H.K	
12.SPECIAL THEORY OF REALATIVITY	
Trouble with classical mechanics	Qualitative discussion of the inadequacy or paradoxes in classical ideas of time length and velocity.
Postulates of Relativity	Statements and Discussion
The Lorentz Transformation inverse transformation.	Derivation, Assumptions on which derived; Application of the same Transformation of Velocities.
Consequences of Lorentz transformation.	Relativity of time ;Relativity of Length;
Relativistic momentum	Derivation
Relativistic energy	Derive $E=mc^2$
Suggested Level : Partially covered by Ch:21 of H.R.K	

Paper-*B* ***WAVES AND OSCILLATIONS***

Harmonic oscillations	
Simple harmonic oscillation (SHM)	Obtaining and solving the basic equations of motion X (t), v (t), and a (t). Energy consideration in S.H.M
Application of SHM	Torsional oscillator; Physical pendulum, Simple pendulum.
SHM and uniform circular motion, combinations of Harmonic motions.	Lissaajous patterns.
Damped Harmonic Motion	Equation of damped harmonic motion, discussion of its solution.
Forced oscillations and resonances	Equation of forced oscillation, discussion of solution .Examples of resonance.
Suggested Level Ch:15 of H.R.K	
WAVES	
Mechanical waves Travelling waves	Phase velocity of traveling waves; Sinusoidal waves; Group speed and dispersion.
Waves speed	Mechanical analysis.
Wave equation	Discussion of solution
Power and intensity in wave motion	Derivation & discussion

Principle of superposition. (Basic ideas).	Interference of waves, standing waves. Phase changes on reflection ; Natural frequency, resonance.
Suggested Level Ch:19 of H.R.K	
SOUND	
Beats phenomena.	Analytical treatment.
Doppler Effect.	Moving source, moving observer, both object and source moving.
LIGHT	
Nature of Light	Visible Light(Physical characteristics)
Light as an Electromagnetic wave.	Speed of light in matter: physical aspects, path. Differences ,phase differences
Suggested Level Ch:42 of H.R.K	
Interference	
Adding of Electromagnetic wave using phasors.	Coherence of source; Double slit interference, analytical treatment.
Interference from thin films.	Newton's ring (analytical treatment)
Michelson interferometer	(Discussion to include use of a

	compensating plate; Michelson interferometer use in determining velocity of light.)
Fresnols Biprism and its use.	
Suggested Level : Ch:45 H.R.K	
Diffraction	Diffraction at single slit; Intensity in single slit diffraction using phasor treatment and analytical treatment using addition of waves. Double slit interference &diffraction combined. Diffraction at a circular aperture.
Diffraction from multiple slits.	Discussion to include width of the maxima.
Diffraction grating.	Discussion, use in spectrographs. Dispersion and resolving power of gratings.
Suggested Level:Ch: 46,47 of H.R.K	
Holography	Qualitative discussion.
Polarization	Basic definition, production of polarization by polarizing sheets, by reflection, by double refraction and double scattering.
Description of polarization states.	Linear, Circular, elliptic polarization.
Rotation of plane of polarization.	Use of Polarimeter.

Suggested Level :Ch:48 of H.R.K	
THERMODYNAMICS AND STATISTICAL MECHANICS	
Temperature, Kinetic theory of the ideal gas, Work done on an ideal gas	Review of previous concepts.
Internal energy of an ideal gas.	To include the Equipartition of energy.
Intermolecular forces. Qualitative discussion.	Vander Waals equation of state.
Suggested Level:Ch:23 H.R.K	
STATISTICAL MECHANICS	
Statistical Distribution and Mean Values.	Mean free path and microscopic calculations of mean free path.
Distribution of Molecular speeds, Distibution of energies.	Maxwell distribution; Maxwell Boltzmann energy distribution; Inertial energy of an ideal gas.
Brownian motion.	Qualitative description. Diffusion, Conduction and Viscosity.
Suggested Level:Ch:24 of H.R.K	
Heat	First law of Thermodynamics &its application to adiabatic,

Review of previous concepts. First law of Thermodynamics, Transfer of heat.	isothermal, cyclic and free expansion.
Suggested Level:Ch:25 H.R.K	
ENTROPY & SECOND LAW OF THERMODYNAMICS.	
Reversible and irreversible process, Second Law. Carnot Cycle; Carnot engines.	Definition, discussion. Heat engine. .Riferagerators&Second Law. Calculation of efficiency of heat engines.
Thermodynamic temperature scale.	Absolute zero: negative temperature, (discussion).
Entropy	Entropy in reversible process Entropy in irreversible process Entropy& Second Law. Entropy & probability.
Suggested Level:Ch:26 H.R.K	
Low Temperature Physics:	Liquefaction of gases: Joule-Thomson effect.

Paper-C ELECTRICTY AND MAGNATISM

ELECTROSTATICS	
Electric charge: Conductors and Insulators Vectors forms of Coulomb's Law	(Review of previous concepts) Coulomb's law for point charges. Quantization and conservation of charges.(discussion)
Suggested Level:Ch:27 H.R.K	
Electric Field	Field due to a point charge: Due to several point charges, Electric dipole.
Electric field of continuous charge distribution.	E.g. Ring of charge; disc of charge; infinite line of charge.
Point charge in an electric field. Dipole in an electric field.	Torque on, and energy of, a dipole in uniform field.
Gauss's Law	Electric flux; Gauss's Law; (Integral and differential forms)
Applications of Gauss's Law (Integral Form)	Charged isolated conductors; conductors with a cavity, field near a charged conducting sheet. Field of infinite line of charge; Field of infinite sheet of charge. Field of spherical shell. Field of spherical charge distribution.
Suggested Level Ch:29 H.R.K	

ELECTRIC POTENTIAL	Potential due to point charge potential due to collection of point charge, Potential due to dipole Electric potential of continuous charge distribution, Equipotential surfaces
Calculating the field from the potential	Field as the gradient or derivative of potential. Potential and field inside and outside an isolated conductor.
Suggested level Ch: 30 H.R.K	
Capacitors and dielectrics	Capacitance calculating the electric field in Capacitor. Capacitors of various shapes, cylindrical, spherical etc, Energy stored in an electric field. Energy per unit volume.
Capacitor with dielectric	Electric field of Dielectric 1: An atomic view2: Application of Gauss's Law, to capacitor with dielectric.
Suggested Level: Ch: 31 HRK	
ELECTRIC CURRENT	
Electric Current	Current density Resistance

	resistivity, Conductivity. (Microscopic and microscopic view of resistivity).
Ohm's Law	Basic definition Analogy between current and heat flow, Microscopic view of Ohm's Law
Energy transfer in an electric circuit. Semiconductor, Superconductors.	Descriptive, giving basic ideas.
suggested Level: Ch: 32 H.R.K	
DC CIRCUITS	
Calculating the current in a single loop, Multiple loops; voltages at various elements of a loop,	Use of Kirchoff's 1^{st} and 2^{nd} Law
RC circuits.	Growth and decay of current in RC circuits, Analytical treatment.
Suggested Level: Ch. 33 H.R.K	
MAGNETIC FIELD EFFECTS.	
Magnetic field B	Basic ideas

Magnetic force on a charge particle, magnetic force on an current	Recall the previous result. Do not drive.
Torque on a current loop	
Magnetic dipole	Define energy of Magnetic dipole in field, Discuss quantitatively.
AMPERE'S LAW	
Biot-Savart Law	Analytical treatment and applications to a current loop, force on two parallel current change conductors
Ampere's Law	Integral and deferential forms, Application to solenoids and toroids.(Integral form)
Suggested Level: Ch: 35 H.R.K	
. FARADAY'S LAW OF ELECTROMAGNETIC INDUCTION	
Faraday's law	Magnetic flux, Consequences of Faraday's law.
Lenz's Law	Discussion, Eddy current etc
Motional E.M.F	Quantitative analysis
Induced electric fields	Calculation and application
Suggested Level: Ch: 36 H.R.K	

MAGNATIC PROPERTIES OF MATTER	
Gauss's Law for magnetism	Discussing and developing concept of conservation of magnetic flux; Differential form of Gauss's law.
Origin of atomic and nuclear magnetism	Basic ideas, Bohr Magneton
Magnetization.	Defining M.B.U
Magnetic Materials	Para- magnetism, Diamagnetism, Ferromagnetism-Discussion, Hysteresis in ferromagnetic materials
INDUCTANCE	
Inductance	Basic definition, inductance of a solenoid, Toroid
L.R Circuits	Growth and decay of current; analytical treatment
Energy stored in a magnetic field	Derive. energy density and the magnetic field
Electromagnetic Oscillation	Qualitative discussion, quantitative analysis using differential equations. (Without considering damped and forced oscillation).Forced ectromagnetic oscillation and resonance.
Suggested Level: Ch: 38 H.R.K	

ALTERNATING CURRENT CIRCUTS	
Alternating Current	AC current in resistive, inductive and capacitative elements
Single loop RLC circuit	Analytical expression for time dependent solution- Graphical analysis, phase angles
Power in a.c circuits	Power, phase angles, R.M.S values, power factor
Transformer	Basic transformer equation
Suggested Level: 39:R.H.K	
MAXWELLS EQUATIONS	
Summarizing the electromagnetic equations.	Gauss's law for electromagnetism. Faraday's law, Ampere's law
Induced magnetic fields & displacement of current.	Development of concepts; Applications
Maxwell's equation.	(Integral &Differential forms) Discussion and applications.
Suggested Level: Ch: 40 H.R.K	
ELECTROMAGNATIC WAVES	

Generating an electromagnetic wave,	
Traveling waves and Maxwell's equations	Analytical treatment, obtaining differential form of Maxwell's equations. obtaining the velocity of light from Maxwell's equations
Energy transport and the Poynting Vector	Analytical treatment and discussion of physical concepts
Suggested Level: Ch: 41 R.H.K	
ELECTRONICS	
Semiconductor materials	Idea of energy bands and energy gaps, (qualitative).p-type-type materials.
Junction diode	Structure, characteristics and applications as rectifier
Transistor	Basic structure and operations
Transistor biasing	Biasing for amplifiers, characteristics of common. Common emitter, common collector, load line operating point, hybrid parameters
Transistor as an amplifier	Common emitter mode common base.
Amplification with feedback oscillators	Positive and negative feedback,Oscillators,multivibrators
Logic gates	OR, AND, NOT, NAND, NOR and their basic applications.

Paper D*: *MODERN PHYSICS

1.QANTUM PHYSICS	
Thermal radiations, (Black body radiation)	Stefan Beitzman, Wien and Plank's law – consequences
The Quantization of Energy	Quantum Numbers, correspondence principles
The photoelectric effect	
Einstein's photon theory	Explanation of photoelectric effect
The Compton effect	Analytical treatment
Line Spectra	Quantitative discussion ,Explanation using quantum theory
Suggested Level: Ch: 49 H.R.K	
2. WAVE NATURE OF MATTER	
Wave behavior of particles	De Broglie hypothesis
Testing De Brogliels hypothesis	Davission-Germer Expt.and explanation
Waves .waves Packers and particles	Localization a wave in space and time
Heisenberg's uncertainty principles (HUP)	HUP for momentum –position and energy-time ,HUP applied to single slit diffraction
Wave function	Definition, relation to probability of particles
Schrödinger Equation	To be presented without derivation and applied to specific cases.eg, step potential ,and free particle ,Barrier junneling, (basic ideas)
3.STATES AND ENERGY LEVELS	
Trapped particles and Probability Densities	Particles in a well, probability density using wave function of

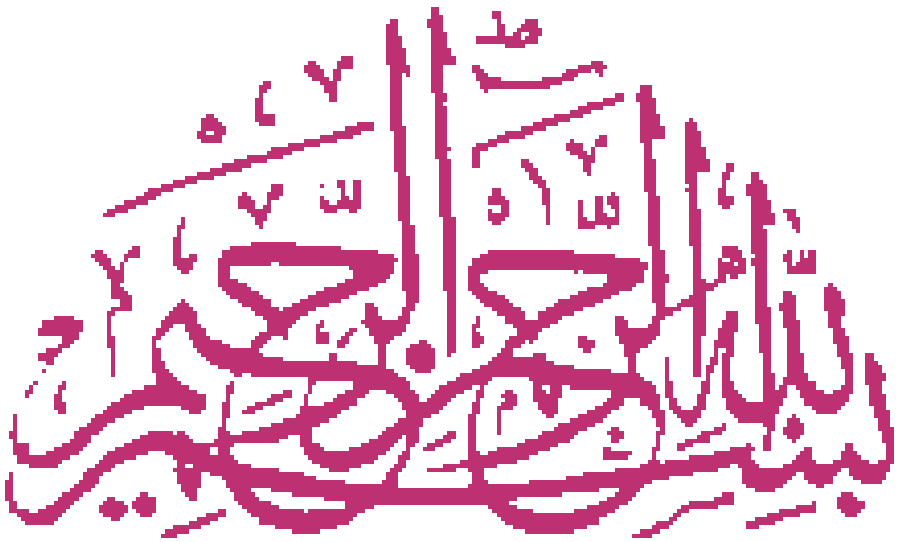
	states ,Discussion of a particles in a well ,barrier tunneling
The correspondence Principles	Discussion
Dual nature of matter (waves & particles)	Discussion
Suggested Level: Ch: 50 H.R.K	
4.THE ATOMIC STRUCTURE OF HYDROGEN	
Bohr's theory	Derivation and quantitative discussion .Franck Hertz Expt... Energy levels of electrons; Atomic spectrum
Angular momentum of Electrons	(Vector atom model). Orbital angular momentum, space quantization. Orbital angular momentum and magnetism. Bohr's magnator.
Electron spin	Dipole in a non uniform field .Stern- Gerlack: experiment, Experimental results
Suggested: Level: Ch: 51 H.R.K	
5. ATOMIC PHYSICS	
X-ray Spectrum	Continuous and discrete spectrum –explanation
X-ray & Atomic number, Development of periodic table	Mosley's law, Pauli's exclusion principles and its use in developing the periodic table
Laser	Basic concepts and working of He-Ne laser

6. NUCLEAR PHYSICS	
Discovering the nucleus	Review, Rutherford's Experiment and interpretation
Some nuclear properties	a)Nuclear systemic, Mass No., a) a)Nuclear systematic (Mass No., Atomic No., Isotopes b)Nuclear force ,basic ideas c) Nuclear radii, d)Nuclear masses ,binding energies ,mass defect , e)Nuclear spin and magnetism
Radioactive decay	Law of decay ,half life, mean life
Alpha decay	Basic ideas
Beta decay	Basic ideas
Measuring ionizing radiations,(Units)	Curie, Rad; etc.
Natural Radioactivity	Discussion ,radioactive dating
Nuclear Reaction	Basic ideas e.g. reaction energy, Q-value .exothermic – endothermic, (Some discussion of reaction energies in the context of nuclear stationery states).
Suggested Level: Ch: 54 H.R.K	
7.ENERGY FROM THE NUCLEUS	
Nuclear Fission	Basic process, Liquid drop model, description, theory of N-

	fission
Nuclear Reaction	Basic principles
Thermonuclear Fission (T.N.F)	Basic process, T.N.F in stars
Controlled Thermonuclear Fusion	Basic ideas and requirements for T.N reactor
Suggested Level: Ch: 54 H.R.K	

BSC, CHEMISTRY

PART I & II COURSE OUTLINE



The University of Lakki Marwat

B.Sc Chemistry Course Structure

Part-I Total Marks = 75

Paper	Title	Theory Marks	Practicals Marks	
A	Inorganic Chemistry	30	15	
B	Physical Chemistry	30		
	Total Marks	60	15	75

Part-II Total Marks = 75

Paper	Title	Theory Marks	Practicals Marks	
C	Organic Chemistry	30	15	
D	Special Topics	30		
	Total Marks	60	15	75

PAPER-A

B.Sc INORGANIC CHEMISTRY (WRITTEN)

1. **Periodic Classification of Elements and Periodic Table**

Modern Periodic Table ;Classification of elements based on s,p,d and f orbitals placement of elements based on electronic configuration in the periodic table ,group trends and periodic properties i.e. atomic radii ,ionization potentials, Electron affinities,electronegatiivitiesand Redox potential (elementary treatment), electrochemical series and their applications.

2. **Chemical bonding**

Nature and types of chemical bond, Theories of chemical bonding: Valance bond Theory and Molecular Orbital Theory. Interpretation of shapes of inorganic molecules on the basis of Valence shell Electron Pair Repulsion (VSEPR) theory and Hybridization.

3. Transition Elements

Electronic configuration of transition elements. General characteristics of d- block elements, Warner's theory of co-ordination compounds. Nomenclature; nature of coordinate covalent bond. Applications of Valance bond, Molecular Orbital and Crystal Field Theories to explain the structures of coordination compounds .Introduction to chelates. , Manufacture of iron and steel.

4. Acid-Base Equilibrium

General concepts of acids and bases including soft and hard acid base concept. Relative strength of acids. Significance of pK, pH and buffers. Theories of indicators.

5. Theoretical Principles of Inorganic Analysis

The law of mass action; Applications of the principles of solubility product and common ion effect in inorganic qualitative analysis.

6. Chemistry of p-block Elements

General characteristics of the following group of p-block elements with reference to the aspects given against each.

a. Boron and Aluminum

Gradation of the characteristics properties within the group. Metallurgy of aluminum electron deficient molecule such as boron hydrides and aluminum hydrides including their structures. Compounds of Boron & Aluminum.

Boric Acid, Borax and Alums.

b. Carbon and Silicon

Gradation of the characteristics properties within the group. Production of pure silicon for solar energy cells and silicon chips. Structural aspects of ortho-and metasilicites. Industrial applications of metasilicates in cement and glass industry. Green house effect.

c. Nitrogen and Phosphorus

Gradation of characteristics properties within the group. Oxides and oxyacids of nitrogen and their role in environmental pollution. Nitrogen and phosphorous based fertilizers.

d. Oxygen and Sulphur

Gradation of characteristics properties with in the group. Role of sulpher dioxide in air pollution. Thionic acids and use of ‘hypo’ in photography.

e. Halogens

Gradations of characteristics properties with in the group. Anomalous behavior of Fluorine .Industrial preparation of Fluorin,

Bromin and Iodine.Oxyacids of halogens; Interhalogens-structural and chemical aspects.

f**. Zero Group Elements.**

Discovery of inert gases, separation and isolation .Chemistry of Xenon Fluoride reactivity, bonding and structure of Xenon compounds; Commercial utilization of inert gases.

Recommended Books

1. Iqbal,Muhammad Zafar, Text Book of Inorganic Chemistry,Ilmi Kitab Khana
Revised Edition (1998).

2. Cotton, F.Albert, Geoffrey Wilkinson and Paul L. Gaus, Basic Inorganic Chemistry, John Wily & Sons, Inc.3rd Edition (1995).

3. Lee, J.D., Concise Inorganic Chemistry, Chapman & Hall, 5th Edition, (1996).

4. Jolly, William. L, 'Modern Inorganic Chemistry', McGraw Hill, 2nd Edition (1991).

5. Shriver, D, F, P.W. Atkins and C.H Langford, 'Inorganic Chemistry', Oxford, 2nd Edition (1994).

6. Sharpe, A.G, 'Inorganic Chemistry' Longman, 3rd Edition (1992).

7. Ryner-Canham, Goef, 'Descriptive Inorganic Chemistry', W.H Freeman & Co (1995).

8. Modern Inorganic Chemistry, Haq Nawaz Bhatti, Bashir Ahmad Nagra, Carvan Book Agency, Lahore.

PAPER-B

B.Sc PHYSICAL CHEMISTRY (WRITTEN)

1. **Elementary Mathematics.**

Simple definition of functions, Equation of straight line. Differentiation of elementary algebraic and trigonometric functions. Meaning of differentiation in terms of rate of change (One compulsory question to be set from this portion).

2. Quantum Theory and Atomic Structure

Rutherford model,Bohar's model, de Broglie wave equation .Solution of SWE for particle in one dimensional box. The concepts of quantization.Quatum Numbers. The SWE. Concepts of atomic orbital and energy levels .Pauli exclusion principle. Hund's Rule of maximum multiplicity.

3. Physical state of Matter

A. Gases:

The Kinetic and molecular theory of gases .Equation of state for an ideal gas, Deviation from ideal gas behavior. The Vander Waal's equation of state. Critical Phenomena, Critical values of temperature, presser and volume Liquefaction of gases. Heat capacity of gases. Molecular collisions. Collision diameter. Mean free path.

B. Liquids

Physical prosperities like surface tension, viscosity, Parachor value, Rheochor value and their applications. Dipole moment, its determination and applications.

C. Solids.

The classification of crystals .Unit Cell. Bragg's Methods of crystals structure analysis, X-rays crystallography of Sodium Chloride. The powder method of crystal structure analysis.

4. Chemical Kinetics.

Order of reaction and molecularity.Zero, first and second order reactions. Various methods of determining the order of a reaction.Dependance of rate constant on temperature (Arhenius equation). Activation Energy and its determination. Brief account of Lindemmann's mechanism for unimolecular reactions. Comparatives study of collision theory and transition state theory for bimolecular reactions.

5. Solutions

Solutions and concepts of concentration units such as ppb and ppm.The ideal and non ideal solutions.Raoult's law. Colligative properties .Such as lowering of vapour pressure, elevation of boiling point (Ebullioscopy), depression of freezing point (Cryoscopy). Osmotic pressure .Distillation and concept of isotropic mixture. Non ideal solution Henry's law.

6. Chemical Thermodynamics.

System and surroundings. First Law of thermodynamics. State functions. Work done and the change of inertial energy during the isothermal expansion of ideal gases. The changes in inertial energy during the heat transfer at constant volume and constant pressure. Heat capacity of gases at constant volume and constant pressure .Concept of reversible and irreversible processes. The Second Law of Thermodynamics. Carnot cycle Entropy, Free energy and Enthalpy changes accompanying phase transition .Helmholtz function and Gibbs Helmholtz equation for the variation of free energy with temperature. Variation of free energy with pressure. Relationship between changes in free energy and equilibrium constant.

7. Electrochemistry.

Equivalent and molar conductance.Dependance of conductance on solvent and temperature.Kohiraush's law and its application. Measurement of conductance. Strong and weak electrolytes, degree of dissociation. Dependence of degree of dissociation on dilution (Ostwald dilution law). Dissociation constant. Calculation of pH for a typical weak acid. Transport numbers and their determination by moving boundary method and Hittorf's method.

Recommended Books

1. Marson S.H & B. Jerome, "Fundamental of Physical Chemistry" Macruthan Publishing co.inc. New York. (Also published by National Book Foundation).
2. Atkins P.W & M.J Clugston. "Principles of Physical Chemistry" Pitman Publishing Company. (1998).
3. Moore W.J "Physical Chemistry" 5th Ed Longmans Publishers.
4. Jones M. "Elements of Physical Chemistry".Addision –Sesky Publishing Company.
5. Adamson A.W "Understanding Physical Chemistry" 3rd Ed, Benjamin Cummings Publishing Company Inc.
6. Heald C & A.C.K Smith, Applied Physical Chemistry English Language Book Society and Mc Millen.
7. Akhtar M.N & Ghulam Nabi, "Text Book of Physical Chemistry.
8. Bhatti H.N and K. Hussain, "Principles of Physical Chemistry. Carwan Book House, Lahore.

PAPER-C

B.Sc ORGANIC CHEMISTRY (WRITTEN)

1. **Nomenclature of Organic compounds:**

Common and Trivial names, systematic naming of organic compounds (mono functional and bifunctional) by IUPAC rules.

2. **Basic Concepts in Chemical Bonding:**

Localized and De-localized Chemical bonding, Rules of Resonance, Resonance effect ,Steric Inhibition of Resonance, Resonance energy, inductive effect dipole moment, Hyper Conjugation, Types of organic reactions.

3. Hydrocarbons:

i. Open Chain

Preparation, properties and reactions of alkanes, alkenes and alkynes.

ii. Close Chain (Alicyclic).

Synthesis, reactions and relative stability of small and medium sized cycloalkanes.

iii. Aromatic Compounds.

Structure of benzene, aromaticity, electrophilic, substitution including orientation and reactivity, addition and oxidation reactions. Preparation and reactivity of naphthalene and anthracene.

4. Isomerism:

Tautomerism, Geometrical isomerism: Cis-Trans isomerism, designation of configuration. Determination of configuration. Optical activity, chirality, Racemization and resolution of racemic mixture, RS configuration, diastereoisomers, Conformational isomerism; Brief introduction to conformation of ethane and cyclohexane.

5. Alkyl Halid

Preparation and reaction of alkyl halides with special reference to nucleophilic substitution and elimination reactions, factors effecting nucleophilic substitution and elimination reactions. Grignard's Reagent: Preparation, structure and synthetic applications.

6. Chemistry of Hydroxyl Group and Ethers:

Preparation, physical properties and reactions of alcohols and phenol.

Ethers: Preparation, properties and reactions.

7. Chemistry of Carbonyl Compounds:

Preparation of aldehydes and Ketones, nature of carbonyl group, reactions of aldehydes and ketones.

8. Chemistry of Carboxylic acids and their derivatives:

Preparation, properties and reactions of carboxylic acids and their derivatives like esters, amides, acid halides, and acid anhydrides.

9. Chemistry of Amino Group:

Structure of aliphatic and aromatic, primary, secondary and tertiary amines. Physical properties, basicity and nucleophilicity of amines, syntheses and reactions of amines.

10. **Definition and Classification:**

a) Chromatographic Methods: paper, thin layer, Column, GC and HPL Chromatography.
b) Spectroscopic Methods: IR, UV and NMR spectroscopy.

11. Diazonium salts:

Preparation and synthetic applications. Lipids: Fatty acids and fats as esters of glycerol, Nucleic acids: Nucleotides.

Recommended Books.

1. Younas, M., Text Book of Organic Chemistry, Ilmi Kutab Khana, Lahore.
2. Rehman, A., Text Book of Organic Chemistry, Karwan Book House Lahore.
3. March, J, Advanced Organic Chemistry, John Wiley &Sons New York.
4. Pine, S.H Organic Chemistry, McGraw Hill, Inc New York.
5. Sykes. P., Organic Reaction Mechanism.
6. Younas, M., Organic Spectroscopy, A.H.Publisher, Lahore.
7. Solomon, T.W.G., Organic Chemistry, John Wiley & Sons, New York.

PAPER-D

(Special Topics)

1. Introduction to Modern Materials

Inorganic polymers; Engineering ceramics; Fiber glass; thin films; Semiconductors.

2. Application of Chemistry in industries.

Glass ii. Cement iii. Fertilizers

3. Chemical Equilibrium

The concept of equilibrium .Law of Mass Action. Equilibrium constant.
Relationship between Kc, KP, Kx, and Kn.Le Chatelier's principles and the effects of variables e.g. temperature, concentration and pressure on equilibrium constant.

4. Surface phenomenon and colloids.

Physical adsorption and chemisorptions. Types of adsorption isotherms. Basic concepts of Frenndllich Longmuir and Gibbs adsorption isotherms and their applications. Types and properties of Colloids suspension. Preparation and applications of colloidal suspensions.

5. Bio-Molecules:

Carbohydrates: Configuration of mono saccharides, cyclic structure of glucose and fructose, glycosides linkage .Protein: Amino acids and peptide bond.

6. Introduction to Atmospheric Pollution.

What is Pollution; Types of Pollution; Atmosphere, Composition of the Atmosphere, Atmospheric structure; Chemical species and particulates present in the atmosphere; Formation of Ozone

in the Stratosphere, Classification of air-pollutants; Acid rain; Effects of Air Pollutants on Man and his Environment.

7. **Introduction to the Nuclear Chemistry.**

Topics:

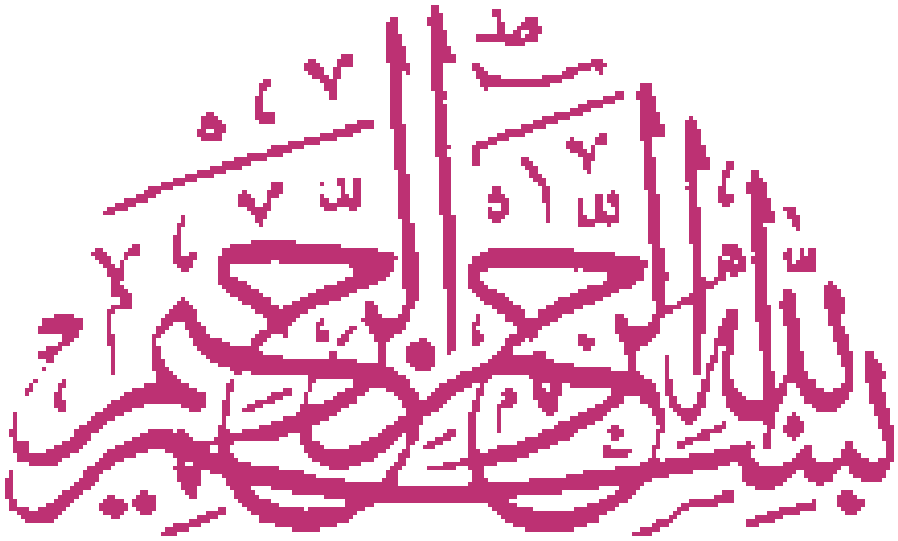
Nuclear Reactions (Fission, Fusion, Chain, Radio activity, Half life).

Recommended Books.

1. Environmental Chemistry by Anil Kumar

2. Physical Chemistry by Ch.Fazal Hussain

3. S.S Dara, "A Text Book Environmental Chemistry and Pollution Control" S. Chand & Company, New Delhi-11055, India. (2007).



BSC, PSYCHOLOGY

PART I & II COURSE OUTLINE

B.A/B.Sc Psychology Course Structure

Part	Paper	Theory	Practical/Experiments	Total Marks
I	Basic Concepts in Psychology.	75		75
II	FIELDS OF PSYCHOLOGY	60	15	75
Total Marks				**150**

Paper-A: **Part-I** **Marks: 75**

Basic Concepts in Psychology.

1. **INTRODUCTION TO PSYCHOLOGY**
   - **a.** Use and Application of Psychology in the world today (with special reference to Pakistan).
   - **b.** Brief historical background and Schools of Psychology.
2. **METHODS OF PSYCHOLOGY.**
   - **a.** Observation (Naturalistic and Field Study).
   - **b.** Case-History
     Brief historical background and Schools of Psychology.
   - **C.** Experimentation (With Special emphasis on variables and basic research design).
   - **d.** Survey.
   - **e.** Interview
3. **NERVOUS SYSTEM AND ENDOCRINE GLANDS.**
   - **a.** Importance of Nervous system in the study of behavior.
   - **b.** Endocrine glands.
4. **SENSATION, PERCEPTION, AND ATTENTION.**
   - **c.** Sensations
     i. Characteristics
     ii. Vision: Structure and functions of the eye.
     iii. Audition: Structure and functions of the ear.
   - **b.**Factors in perceptions
     i. Subjective, Objective and Social.
     ii. Kinds of perception: Spatial, Temporal and Auditory.
   - **c.** Attention
     i. Definition.
     ii. Conditions of attention (Subjective and Objective).
     iii. Span and fluctuation in attention.

5. MOTIVES:

a. Definition.

b. Classification.

i. Biogenic Motives (Air, Hunger, Thirst, Defecation and Urination, Fatigue and Sleep, Pain, Temperature regulations, Maternal behavior and sex).

ii. Socio-genic Motives (Play and manipulation exploration) and

6. EMOTION:

a. Definition and nature.

b. Physiological changes during emotions. Cardio visceral, Glandular, G.S.R. and Pupiliometries.

c. Theories of Emotions.

i. James-Lange theory.

ii. Cannon-Bard theory.

iii.Schachter-Singar theory.

7. LEARNING:

a. Definition and types.

i. Classical and instrumental conditioning.

ii. Trial and Error.

iii.Modling.

iv. Insight.

v. Imprinting.

8. MEMORY AND FORGETTING.

a. Definition and Nature.

b. Memory processes (Retention, Recall, and Recognition).

c. Training of Memory.

d.Forgetting (Definition, Nature and Theories).

9. THINKING

a. Definition and nature, autistic thinking.

b. Kinds: (Realistic thinking, creativity and problem solving).

c. Tools of thinking :(Imagery, Language, Concepts).

10. PERSONALITY:

a. Definition and nature of Determination of Personality.

b. Heredity and Environment.

c. Assessment (Protective and non-Protective techniques).

Note:

Wherever necessary relevant research findings be quoted with special to Pakistani culture context.

RECOMMENDED BOOKS:

Bourne, L.E.Jr. & Ekstrand, B.R. Psychology, Its Principles and Meanings Hor Rineharl & Winston. Hail, C.S. & Lind/.cy, K.(1957). Theories (^Personality. New York: John Willy and Sons Inc. Hilgard, E.R, Atkinson, R.Cand Atkinson, R:L. (1975). Introductioi to Psychology.(6lh cd.). Oxford & IBM Publishing Co. Lanbert, W.N & Lunbert, W.E. Social Psychology, Englcwood Cliffs: N.J. Prentice Hall Papalia D. and Old S.W. Psychology N.Y: McGravv Hill Zimbardo, P .G. (1985) Jogy and hie. Stanford University. HarperCollins Publishers.

PAPER- B **60 Marks**

FIELDS OF PSYCHOLOGY.

1. PSYCHOMETRICS

a) Scope and application of Psychological tests

b) Type of tests

individual, Group, verbal, und Performance tests.

c) Characteristics of a Psychological test

Standardization, Objectivity, Reliability, and Validity.

d) Introduction to:

i) Ability tests (Stanfortl Binet. WAIS. WISC)

ii) Personality tests (16 PF, TAT, and Rorschach).

2. ABNORMAL AND CLINICAL PSYCHOLOGY

a. The concept of normality and abnormality.

b.Causes (Biological, and Psychological).

c) Psychological Disorders:

B) Psychoses: Schizophrenia and its types, Depression

d) Character disorders:

i) Psychopathic Personality

ii) Delinquency

3. DEVELOPMENTAL PSYCHOLOGY.

b. Nature and Scope.

C. Methods; Longitudinal, Cross-sectional.

d. Aspects of Development: Physical, Psychological Socio-linguistic & Cognitive.

e. Phases of Development: Prenatal period. Birth, Infancy, Childhood, Adolescence, Adulthood, and Old-age.

4 EDUCATIONAL PSYCHOLOGY:

a. Nature and Scope.

b. Learner's Characteristics: Abilities, Motivation, Interest, and Aptitude.

c. Teacher's Characteristics: Teacher's personality, Communication skill, Expectation and Teacher as a model.

d. Educational Environment: Classroom atmosphere.

e. Counseling and Vocational Guidance.

5. SOCIAL PSYCHOLOGY:

a. Nature and Scope.

b. Group and its kinds.Primary group. Secondary group. Reference group, In-and Out group.

c. Attitude

Formation and change, Measurement Lacerate Scale obtrusive.

d. Leadership

Characteristics of a good leader, Authorilarian, Democratic.

e. Mass Media and communication

" Electronic media and Print media.

6. INDUSTRIAL PSYCHOLOGY:

a. Nature and Scope.

b. Selection and placement:
Tests and interview

c. Working environment
Physical and Psychological.

d. Job satisfaction and Productivity

BOOKS RECOMMENDED:

Berrien I- .K Practical Psychology. *A'Vnr* York: Harper and Brooks. Rnnti, HE. Applie-Psychology. London Meineten, D.E.Papalia & *.V.* WQlds, Human Development New York McGraw Hill.Gihuer B.U, V , Applied P^ychola^y: NY; McGraw f/itl MUITUM, F.LAreas o

EXPERIMENTS: 15 Marks

Anyone experiment from each of the following groups (99 in all)

. A. PSYCHO-PHYSICS

i. Two point threshold

ii. . Mueller-Lyerillusion

B. LEARNING-I

i). Maze Learning.

ii). Transfer of training.

C. LEARNING-II

i. Massed Vs Distributed Learning

ii. Whole Vs part learning

iii- Meaningful VS Nonsense learning

D. MEMORY

i. Memory: Function of Recitation

ii. .Memory: Method, of Social reproduction

iii. Memory: Function: of Time (Saving method)

E. SENSATION AND PERCEPTION

i. Color Zones of Retina

ii. Blind Spot

iii. After imagcs.

F. **ATTENTION**

i. Span of attention

ii. Fluctuation In Attention

G. THINKING

i. Problem solving

ii. Concept formation

II. ADMINISTRATION

OF TEST

i. Word-Association Test

ii. Block Design (Koh's Block

design)

iii. Draw-A-Person test

I. SOCIAL EXPERIMENT

i. Rumor (Method 'of Serial reproduction) .

ii. Attitude (Survey of Study of Habits and Attitudes (SSHA) Dr. A.A. Ansari, National Institute of Psychology, Islamabad.

iii. Observation of

behavior.

BOOKS

RECOMMENDED

Collins & Derver, A First Laboratory Guideline in Psychology. New York larper & Kavv Ganelt, H.E. (1967). Statistics in Psychology and Education London: Longmans, Green & Co, Guilford, J.P. & Fruchtcr, B. (1987). Fundamental Statistics in Psychology and Education. New York. McGraw Mill Book Company. Postman, L. & Egan. J.P. Experimental Psychology. New York: I larper X: Row.

BSC, MATHEMATICS

PART I & II COURSE OUTLINE

B.Sc Mathematics Course Structure

A-Course of Mathematics:

Part-I

Paper-A **Marks:3**
(Complex Variables, Linear Algebra and Fourier Series)

1. Complex Variables.
2. Linear Algebra.
   a. Vector Space.
   b. Matrices
3. Infinite and Fourier Series.

Paper-B **Marks:4**
(Differential and Integral Calculus)

1. Differential Calculus.
   a. Bounds, Limits & Continuity.
   b. Derivatives.
   c. Mean Value Theorems, Indeterminate Forms & Expansions.
   d. Plan Curves, Partial Derivatives.
2. Integral Calculus.

Part-II

Paper-C **Marks:35**
(Geometry)

1. Two-Dimensional Analytical Geometry.
2. 3-Dimensional Analytical Geometry.

Paper-D **Marks:40**
(Numerical Methods and Differential Equations)

1. Numerical Methods.
   a. Numerical solution of Non-Linear Equation.
   b. Numerical Solution of Simultaneous Linear Algebraic Equation.
   c. Numerical Integration.
2. Differential Equations.

Detail Course Outline:

Part-I Credit: 75 Marks

Paper-A Marks: 35

(Complex Variables Linear Algebra and Infinite, Fourier series)

1. **Complex Variables:**

Complex numbers, De Moiver's theorem and its application, Exponential,

Logarithmic, Trigonometric and hyperbolic function of complex variables,

Separation of complex valued functions into real and imaginary parts of

Complex expression.

2. **Linear Algebra:**

   a. **Vector Space:** Field, vector space, sub spaces and their examples,

   Linear dependence and independence, Basics and dimensions of

   Finitely spanned vector spaces, linear transformation of vector

   Spaces, Kernel spaces, image spaces and the relation between their

   Dimension.

   b. **Matrices:** Motivation of matrices through a system of linear homogeneous and non-homogeneous equations. Algebra of matrices, Determinants of matrices, their properties and their evaluation, Various

   Kinds of matrices, Matrix of a linear transformation, Elementary row

   and column operations on matrices, Rank of a matrix and rank of linear

Transformation, Evaluation of rank and inverse of matrices solution of

Homogeneous and non-homogeneous equations.

3. **Infinite and Fourier Series:**

Infinite series: Sequences, infinite series and their convergence, Comparison, quotient, ratio and integral test of convergence (without proof),

Absolute and conditional convergence.

Fourier series: Fourier series, Fourier Sine and Cosine Series.

Recommended Books:

1. Dr. Karamat Dar, Iran ul Haq and M. Ashraf Jajja, "Mathematical Techniques", The Carvan Book House, Lahore 1998.

Paper-B Marks: 40

(Differential and Integral Calculus)

1. **Differential Calculus:**
   a. **Bounds, Limits and Continuity:**
      Upper and Lower bounds of variables and functions, Left and right limits of a function, Continuity of function and their graphic representation, Inverse of exponential, circular, hyperbolic and logarithmic function.
   b. **Derivatives:**
      Definitions of a derivative, Relationship between continuity and differentiability, higher derivatives, Leibnitz's theorem.
   c. **Mean Value Theorems, Indeterminate Form and Expansions:**
      Rolle's Theorem, Lagrange's mean value and Cauchy's mean value theorems, Indeterminate forms, L'Hospital's rule, Taylor's and Maclaurin's theorems.

d. Plane Curves:

Curves and their representation in Cartesian, polar and parametric forms, Tangents and normals, Maxima, Minima and points of inflection, Convexity and concavity, Asymptotes, curve tracing.

Partial Derivatives: Functions of more then one variables, partial derivatives, Euler's theorem, Total differentials and implicit functions, Maxima and Minima of functions of more then one variable without constraints.

2. Integral Calculus:

Definite and indefinite integrals, Properties of definite integrals, Techniques of integration and reduction formulae, Evaluation of improper integrals (with special reference to Gamma functions), Simple cases of double and triple integrals, Surfaces, Areas and volumes of revolution.

Recommended Books:

1. Zia ul Haq, "Calculus and Analytic Geometry", The Carvan Book House,
Lahore, 1992.

Part-II

Credit: 75 Marks

Paper-C

Marks: 35

(Geometry)

1. Two-Dimensional Analytical Geometry:

Translation and rotation of axes, General equation of the second degree and
the classification of conic sections, Conic in polar coordinates, Tangents and
Normals.

2. 3-Dimensional Analytical Geometry:

Rectangular coordinate system, Translation and rotation of exes, Direction cosines and ratios and angles between two lines, Standard forms of equations of planes and lines, Intersection of planes and lines, Distance between points, Lines and planes, Spherical, Polar and cylindrical coordinate systems.

Standard form of the equation of a sphere, cylinder, cone, ellipsoid, paraboloid and hyperboloid, Symmetry, intercepts and section f a surface, Tangent planes and normals.

Recommended Books:

1. Zia ul Haq, “Calculus and Analytic Geometry”, The Carvan Book House,
   Lahore, 1992.

Paper-D

Marks: 40

(Numerical Methods and Differential Equation)

1. **Numerical Methods:**

a. **Numerical Solution of Non-linear Equation:**

Error in computation, Numerical Solution of algebraic and Transcendental equations, isolation of roots, graphical method, Bisection method, iteration methods, Newton-Raphson methods, Method of false position.

b. **Numerical Solution of Simultaneous Linear Algebraic Equation:**

Choleski's Factorization method, Jacobi iteration method, Guass Seidel Method (3*3 matrices only).

c. **Numerical Integration:**

Trapezoidal and Simpson's rules.

2. **Differential Equations:**

Formation of differential equation, Families of curves, Orthogonal trajectories, Initial and boundary value problems, Different methods of solving first order Ordinary Differential Equation (ODE), Second and higher order linear differential equations with constant coefficients and their methods of solution, Cauchy-Euler equation, Applications of first order ODE in problems of decay and growth, population dynamics, logistic equation, Second order system of linear differential equations.

Recommended Books:

1. Dr.M.Iqbal, "Numerical Analysis", Ilmi Kitab Khana, Lahore, 1999.
2. Dr.Karamat Dar, Irfan ul Haq and Ashraf Jajja, "Mathematical Techniques", The Carvan Book House, Lahore, 1998.

B.Sc Mathematics Course Structure

B-Course of Mathematics:

Part-I	Part-II
Paper-A **Marks:3** (Vector Analysis And Static's)	**Paper-C** **Marks:35** (Number Theory and Group Theory)
1. Vector Analysis.	1. Number Theory.
2. Static's	2. Group Theory.
Paper-B **Marks:4** (Dynamics)	**Paper-D** **Marks:40** (General Topology and Linear Programming)
2. Dynamics of a Particle.	1. General Topology.
	2. Linear Programming.

Detail Course Outline:

Part-I Credit: 75

Marks

Paper-A Marks: 35

(Vector Analysis and Static's)

1. **Vector Analysis:**

   Three dimensional vectors, coordinate systems and their bases, Scalar and vector triple products, Differentiation and Integration of vectors, Scalar and vector point functions, concepts of gradient, divergence and operations along with their applications.

2. **Static's:**

   Composition and resolution of forces, Particles in equilibrium, Parallel forces, moments, couples, General conditions of equilibrium of coplanar forces, Principle of virtual work, Friction, Centre of gravity.

Recommended Books:

1. Muhammad Afzal,"A First course in Vector Analysis", West Pak Publishing Co. Lahore.
2. Dr. Q.K.Ghori, "Introduction to Mechanics", West Pak. Publishing, CO. Lahore, 1971.

Paper-B Marks: 40

(Dynamics)

1. **Dynamics of Particle:**

   Fundamental laws of Newtonian mechanics, Motion in a straight line, Uniformly accelerated and resisted motion, Velocity and acceleration and their components in Cartesian and polar coordinates, Tangential, normal, radial and transverse components of velocity and acceleration, Relative motion, Angular velocity, Conservation forces, projectiles,

Central forces and orbits, Simple harmonic motion, damped and forced vibrations, elastic strings and springs.

Recommended Books:

1. Dr. Q.K.Ghori, “Introduction to Mechanics”, West Pak. Publishing, CO. Lahore, 1971.

Part-II

Credit: 75 Marks

Paper-C

Marks: 35

(Number Theory and Group Theory)

1. **Number Theory:**

   Divisibility, Euclid’s Theorem (Division Algorithm Theory), Common Division, Greatest Common Divisors, Least Common Multiple, Prime Numbers, Linear Diophatine Equations, Congruence’s, Residue Systems, Euler’s Theorem, Fermat’s Theorem, Solution of Congruence’s.

2. **Group Theory:**

   Definition and examples of abelian and non-abelian groups, Congruence’s, Congruence’s as equivalence relations, Cyclic groups, Order of a group, order of an element of a group, Subgroups, Cosets, The Lagrange’s theorem (Connection between the order of a group and order of its elements) and its applications, Permutations, Cycles, length of cycles, Transposition, Even and odd Permutations, Permutation/Symmetric groups, Alternating groups.

Recommended Books:

1. S. Manzoor Hussain,” Elementary Theory of Numbers”, The Carvan Book House, Lahore, 1971.
2. Dr.Karamat Dar, Irfan ul Haq and Ashraf Jajja, “Mathematical Techniques”, The Carvan Book House, Lahore, 1998.

Paper-D

Marks: 40

(General Topology and Linear Programming)

1. **General Topology:**

   Definitions and examples of topological and metric spaces, open and

   closed sets, Neighborhoods, limit points of a set, closure of a set and its

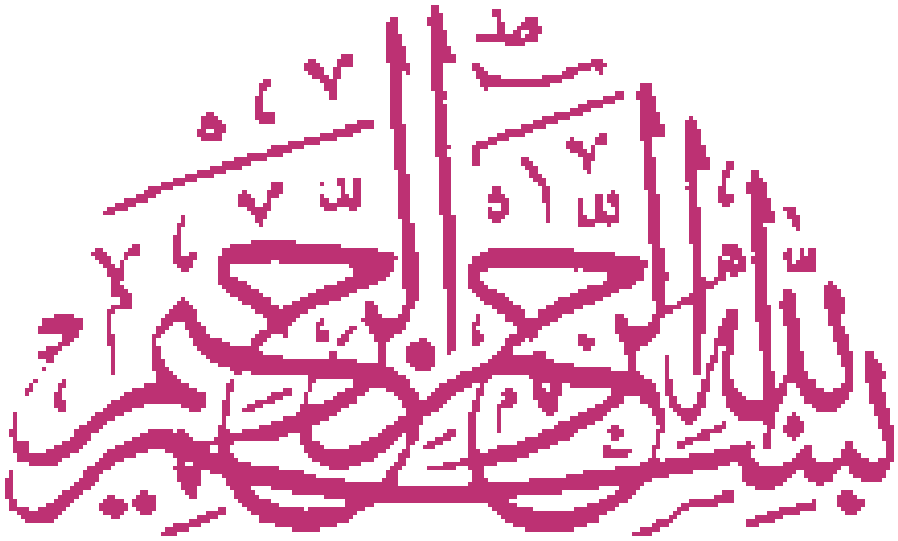
   properties, Interior, exterior and boundary of a set, Definition and examples of continuous functions and homeomorphisms.

2. **Linear Programming:**

   Linear programming in two dimensional spaces, the general linear programming problem, Systems of linear inequalities, solution spaces in linear programming, an introduction to graphical and simplex methods.

Recommended Books:

1. S.M. Yahya," Introductory Set Topology", The Time Press, Karachi 1971.
3. Dr.M. Iqbal, "Numerical Analysis", Ilmi Kitab Khana, Lahore, 1999.



BSC, STATISTIC

PART I & II COURSE OUTLINE

B.A/B.Sc Statistic Course Structure

Paper	Marks
I	60
II	60
Total	120

PART-I STATISTICS

.MARKS=60.

The question paper shall contain two sections i.e. Section-A and Section-B. There will be ten questions in total. The candidate will have to attempt five questions, at least two questions from each Section. All the questions will carry equal marks. The question 1 will be compulsory (Objective type) to be set from then whole course of B.A/B.Sc Part-I

PAPER-1

Section- A

1. **Descriplive Statistics (1/10)**
Definition of Statistics, use of statistics in different disciplines, descriptive and inferential statistics. Population and sample. Types of variable and their measurement scales, description of data by frequency tables and graphs. Measures of central tendency, location and dispersion and their properties. Moment, skew ness and kurtosis.

2. Sampling (1/10)

Basic concepts. Advantages of sampling. Probability and non Probability sampling. Sampling and non sampling errors. Sampling design of simple random, stratified and cluster sampling. Judgment and quota sampling, Random numbers and their use in sampling.

3. Index numbers (1/10)

Index numbers. Simple and composite indices. Problem in the construction of index numbers. Constriction of whole sale price indices. Weighted index number, Laspeyres, Paasche, S,Marshall-edgeworth and fisher's ideal indices. Quantity indices. Consumer price index, Construction and use.

4. Time series (1/10)

Time series. Decomposition of time series, Measurement of trend, Seasonal and Cyclic variations. Seasonal indices.

Section-B

5. Probability (1/10).

Review of sets. Operation on sets. Cartesian product of sets. Random experiments. Sample space and events. Definition and axioms of probability. Rules of counting of points. Basic laws of probability. Independence of events. Bayes, theorem. Application of probability.

6. Random Variable (2/10)

Random variable. Distribution function. Discrete and continuous random variable. Probability distribution of discrete and continuous random variable. Joint distribution of two discrete and continuous random variables. Marginal and conditional distribution. Mathematical expectation and its properties. Covariance and correlation of two random variable. Mean variance and moments of simple continuous distributions.

7. Discrete Probability distribution (1/10)
Uniform, Bernoulli, binomial, hyper-Geometric, Poisson, Negative Binomial and Geometric distribution, their properties and application with example from various fields.

8. Continuous Profanity distributions (1/10)
Uniform exponential and normal distribution with their properties and application from various fields.

PRACTICAL-I

1. Construction frequency distribution from raw data.
2. Graphical display of frequency distribution constructed (i) above (histogram, Polygon etc).
3. Empirical study of the shape of the frequency distribution constructed in (i)
4. Analysis of tine series.
5. Construction of indices.
6. Fitting of binomial, Poisson and normal distribution to real world data.

Note:

1. At least fifteen practical covering all the topics above must be conducted in the Laboratories using Scientifics calculators/personal computer.
2. The practical examination shall be to two hours duration. 3 marks shall be reserved for Viva Voce examination and another 2 for the practical note book.

Books Recommended.

1. Walpole, LR (1990)," Introduction to Statistics 3rd Edition" Macmillion Publishing Co, Inc New York.
2. Ch: S.M, and Kamal, S. (1998) "Introduction to Statistical theory Part-I and Part-EL Karwan book house Kutechery road Lahore.

Reference books.

1. Spiegal, M.R. Schiller, J.L. and Srinivasan, R.L. (2000). " Probabilly and Statistics Edition. Schaums outline series McGraw Hill New York.
2. Freedman, D. Pisani R.Pervas and Adhikri, A. (1997) " Statistics 3rd Editiion, Norton
New York.Beg, M. A. and Mirza, M.D (1997) “Statistics theory and methods" Vol-I &

End. Karwan

3. Book house Kutecheiy road Lahore.

PART-II. STATISTICS. Marks. 60

The question paper shall contain two Sections i.e. Section-A and Section-B. There should be ten questions in total. The candidate will have to attempt five questions at least two questions from each Section. All questions will carry equal marks. The question No. I shall be compulsory (Objective type) to be set from the whole course of the B.A/B.Sc Part-II.

PAPER-II

Section-A

1. Sampling distribution (1/10).

Sampling distribution of a statistics and its standard error. Distribution of a sample mean and central limit theorem with illustrations. Distribution of a difference between two samples means. Distribution of sample proportion and difference between samples proportion.

2. Statistical Inference "Estimation" (1/10)

Concepts of statistical inference. Estimate and estimators. Point estimation of parameter. Properties of point estimators, unbiased ness, consistency. Interval estimation. Confidence interval and its interpretation. Interval estimation of the mean, proportion and the difference between proportion of population with known and un known variances biased on large sample. Determination of sample size.

3. Statistical inference, testing of hypothesis (1/10)

Null and alternative hypothesis. Two types of error and the power of test. Acceptance and rejection regions. One sided and two sides tests level of significance. General steps in hypothesis testing. Test of hypothesis about the means, difference between two means, proportion and the difference between proportion in case large samples and in small samples with population variances are known.

4. Student's T-distribution and statistical Inference (1/10)

The student's T-distribution. Interval estimation of the mean and difference between two means. Tests of hypothesis about mean, difference between two means. Paired observation. (Biased on small simple and population variance not known).

5. Chi-Square distribution and Chi-Square tests (1/10).

Chi-Square distribution. Interval estimation of population variance. Test of hypothesis about the variance. Pearson's test for goodness, of, fit. Contingency tables and test s for independence Yarts, correlation for continuity.

Section B

7. Analysis of variance and multiple comparison tests (1/10)

F-Distribution and testing the hypothesis about the equality of two variances. Analysis of variance for one-way and two way classification. Multiple comparison the least significant difference (L.S.D) and Duncan's multiple range test, (DMRT)

8. Basic experimental designs (1/10)

Principles experimental design. Completely randomized, Randomized complete Block and Latin square designs. Description, layout, statistical analysis, relative efficiency, advantages and limitation of these designs.

9. Regression Analysis (1/10)

Deterministic and probabilistic models. Scatter diagram simple linear regression. Least square estimates. Properties of least square regression line. Stationary errors of estimates. Interval estimation and test of hypothesis about regression. Co-efficient of determination. Multiple linear regression with two regressors. Co-efficient of multiple determination. Statistical Inference in multiple regressions.

10, Co-relation analysis (1/10)

Linear Co-relation. Partial and multiple co-relations for 3 variables. Test of hypothesis about linear co-relation co-efficient. Statistical inference in partial and multiple co-relations.

11. Non parametric methods (1/10)

Introduction to non parametric method. Advantages of non parametric methods, Sign test, run test, Mann Whitney U test Test of independence of goodness of fit. Spearman co-relation.

Practical-II

.1. Construction of sampling distribution. Sampling distribution of sample means and difference in means (with and without replacement).

2. Testing of hypothesis and construction of confidence interval for the mean,

different
between in small and large sample with known and unknown variances.

3. Goodness-of-fit and testing of independence through Chi-square test.
4. Simple and multiple linear regression with two regrossors.

5 Analysis of variance in one way classification and two way classification (L.S.D. test desirable).

6. Basic experimental designs, completely randomized, randomized complete Block and Latin square designs,

7. Non parametric tests.

Note.

1. At least fifteen practical covering all the topics above must be conducted in the Laboratories using scientific calculators/personal computers.

2. The practical examination shall be of two hours duration. 3 marks shall be reserved for the Viva Voce and another 2 marks for the practical note book.

Books recommended

1. Wholpole, E.R (1990) "Introduction to Statistics" 3rd Edition, Mac- million publishing Co, Inc. New York.

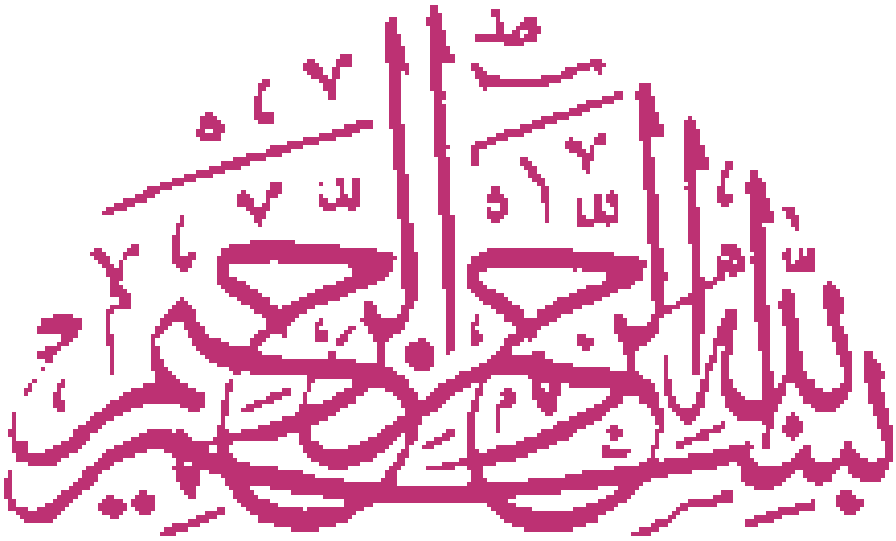
2. Ch: S.M. and Kamal, S (1998). "Introduction to statistical Theory part-I and II, Ilmi Kutab Khana Urdu Bazar Lahore.

Reference Books

1. Fredman, D. Pisaini, R.Pervaiz, R. and Adhkari, A..(1997) " Statistics, 3rd Edition, Norton, New York.

2. Beg, N.A, and Mirza, M.D (1997) " Statistics" Theory and Methods, Vol-I & II . Karwan Book House Kuteshary road Lahore.

3. Piegal, M.R Schiller, J.L and srinivasan, R.L (2000) " Probability and Statistics" 2nd Edition. Schaums outline series. Mc Graw Hill. New York.



COMPUTER SCIENCES

PART I & II COURSE OUTLINE

Computer Science
Part I & II
Course Structure

PAPERS & MARKS DIVISIONS

Part	Paper	Section / Paper Name	No of Questions	Section Marks	Paper Marks
I	**A**	**Section A**		**15**	**30**
		Introduction to Computers	**3**		
		Number Systems	**2**		
		Section B		**15**	
		Operating System	**4**		
		Introduction to DOS	**1**		
	B	**Section A**		**15**	**30**
		C++ Language	**5**		
		Section B		**15**	
		Data Structures	**5**		

Viva Voice	**15**
Total Marks	**75**

Part	**Paper**	**Section / Paper Name**	**No of Questions**	**Section Marks**	**Paper Marks**
II	**C**	Programming in Visual BASIC	**8**		**30**
	D	Database Systems	**8**		**30**
Viva Voice					**15**
Total Marks					**75**

B.Sc. Part - I — Total Marks 75

Paper – A — Marks 30

Section – A (15 Marks)

- Introduction to Computers (3 Questions)
- Number Systems (2 Questions)

Section – B (15 Marks)

- Operating System (4 Questions)
- Introduction to DOS (1 Question)

Note : Attempting total of FIVE questions, at least 2 from each section.

Paper – B

Section - A **Marks** 30

- C++ Language (5 Questions)

Section – B

- Data Structures (5 Questions)

Note: Attempting total of FIVE questions, at least 2 from each section.

Viva Voce — Marks 15

B.Sc. Part - II — Total Marks 75

Paper – C — Marks 30

Programming in Visual BASIC (8 Questions)

Note: Attempting any FIVE questions of the eight.

Paper – D Marks 30

Database Systems (8 Questions)

Note: Attempting any FIVE questions of the eight.

Viva Voce Marks 15

Total Marks (Part I & II) 150

Syllabus for B.Sc. Computer Science
University of Science & Technology Bannu.

COURSE CONTENTS

B.Sc. Part - I **Total Marks 75**

Paper – A

Section – A

Introduction to Computers

History & Generations of Computers, Common Characteristics of Computers, Functional Units of Computers, Types of Computer Languages, Types of Software, Computer Virus and Antivirus.
Introduction to Information Technology: *Networks, Types of Networks; LAN, MAN, WAN, Internet, E-Mail, Instant Messaging, Web Site, Web Page, Web Browsers, ISP, Search Engine, Protocol.*

Number Systems

Introduction; *Decimal, Binary, Octal & Hexadecimal Number System and their Inter-conversions;*
Binary Addition and Subtraction; *The use of 1's & 2's complements.*
Boolean Algebra: Introduction, De Morgan's Law
Gates: AND, OR, NOT, NAND& NOR gates and their Truth Tables.

Books Recommended :

1. Using Information Technology By Williams Sawyer
2. Fundamental Concepts of Computers By Asiya Sultan Ali & Amina Nudrat

Section - B

Operating System

- Introduction to Operating System.
- Purpose and Functions of an Operating System.
- Types of Operating Systems :
  General Purpose: Single User & Multi-user Operating Systems *(Multiprogramming, Multiprocessing, Time Sharing Systems)*
  Special Purpose: Batch, Real Time, Network & Distributed Operating Systems.
- Process Management: *Process States, 3 and 5 states models, PCB, Interrupts* & types.
- Deadlock; *Necessary & Sufficient Conditions, Prevention, Avoidance, Detection.*
- CPU Scheduling; *Levels, Types, Scheduler and its types, Policies (FIFO, SJF, HRN, RR, SRT*).
- Memory Management; *Real Storage Management, Memory Allocation Methods (Single Process, Fixed & variable Partition Multiprogramming, Fragmentation, Swapping. Virtual Memory; Introduction to Paging and Segmentation.*

- An Overview of DOS : *Internal & External Commands, DIR, CLS, COPY, VER, RENAME, DELETE, FORMAT, MKDIR, CHDIR, RMDIR, DOSKEY, MODE, PROMPT, TIME, COPY CON, TYPE.*

Books Recommended :

1. Operating Systems by H.M. Deitel. Addison Wesley.
2. Operating System Concepts by Silberschatz. Addison Wesley
3. Operating System By Colin Ritchie

Paper –B

Section – A

Structured Programming in C++ Language

- Introduction to Programming.
- Types of Programming : Monolithic, Structured, OOP & Visual programming.
- History and Background of C++
- Basic Elements of a C++ Program.
- C++ Character Set.
- Constants & Variables.
- Introduction to Data Types: Basic (*int, float, char, void), Derived (short, long)*etc.
- Type Casting
- Operators: *Arithmetic (+, - , / , % , \ , ++ , - -) , Relational (<, > , ==, <=, >=, !=) and Logical operators (&&,* || *, !).*
- Expressions & Statements.
- I/O in C++: *cin, cout.*
- Control Structures: i*f statement, Nested if, goto statement, switch statement, for, do &*

while loops, Nested loops, The use of break.

- Arrays: *One Dimensional & Multidimensional arrays.*
- Structures & Unions.
- Functions: *User defined Functions; Function Prototype, Definition and Function Call Passing Parameters, Passing Constants, Passing Variables (Call by Value & Reference), Function returning values, Global & Local variables, Recursion, Built-in Functions; Trigonometric, Arithmetic, String and I/O functions.*
- The C++ Preprocessors.

Books Recommended :

1. Programming in C/ C++ By M. Tariq Siddiqui
2. Programming With C++ by C.M. Aslam & T.A. Qureshi (Aikman Series)
3. Turbo C Programming for the IBM PC by Robert Lafore.

Section – B

Data Structures

- Introduction & Importance.
- Operations on Data Structures.
- Algorithms : Components and Characteristics of an Algorithm,
  Types of Algorithm : *Pseudocode, Flowchart*

- Types of Data Structures: Physical & Logical (Linear and Non-Linear Data Structures)
- Linear Data Structures; *Arrays, Stacks, Queues, Linked List, Algorithms for Insertion & Deletion in Linear Data Structures.*
- Searching : Linear & Binary Search
- Sorting : Bubble, Insertion & Selection Sort
- Non-Linear Data Structures; *Trees, Types of Trees, Constructing Binary Search Tree, Tree Traversals, Infix, Prefix & Postfix Notations.*

Books Recommended :

1. Introduction to Data Structures by Seymour Lipschutz (Schaum Outline Series)
2. Data Structures Using C/C++ By Aaron M. Tenenbaum.
3. Data Structure in C++ By C.M. Aslam & T.A. Qureshi (Aikman Series)

B.Sc. Part - II

Paper – C

Programming in Visual BASIC

- Visual BASIC Language Basics.
- Event Driven vs Procedural Languages; *Properties, Methods & Events, Event driven procedures.*
- Working with Forms and Menus.
- Operators in VB.
- Control Structures; *If & Select statements, Loops.*
- Basic I/O in VB; *Print statement, the use MsgBox() & InputBox().*
- Basic Active X Controls; *Command Button, Text Box, Label*, *Check boxes, Option Buttons, Frame, Scroll Bars, File Controls*.
- Arrays; *Data Arrays, Control Arrays.*
- Graphics; *Drawing and painting with VB.*
- Database Programming in VB; *Data Access Objects (DAO), Active Data Object (ADO), Visual Data Manger*.
- Visual Basic and the Web.
- Error Handling.

Books Recommended :

1. Mastering Visual BASIC by Evangelos Petroutsos
2. Visual Basic By C.M. Aslam & T.A. Qureshi; (Aikman Series)

Paper – D

Database Systems

- Introduction to Database.
- Conventional file Handling vs Database Systems.
- Components of Database Environment.
- Data Concepts and Characteristics: *Nature of Data (Reality, Meta & Actual Data).*
- Terminology *:* Entity, Attribute / Field, Identifier / Primary key, Record / Tuple, Relation / table, Degree, Cardinality, Domain, Secondary Key, Composite Key, Compound Key, Foreign Key.

- Associations: 1:1, 1:M, M:N, Reversed and Conditional Association.
- ANSI SPARC Model : *Logical, Physical and Conceptual view of Data*.
- Data Models: *Relational, Hierarchical and Network*
- Database Development Life Cycle (DDLC).
- Entity-Relationship Data Model: Components, Relationships(Unary, Binary & Turnery)
- Normalization: *1st 2nd & 3rd Normal forms.*
- Integrity: *Primary Key, Foreign Key, Operational & Domain Constraints.*
- Security: *Passwords, Authorization, Authentication, User view, Encryption*.
- Concurrency: *Lost update problem, Locking Technique, Deadlock Management, Versioning*
- Backup & Recovery, Types of Backups, Recovery Techniques.
- Relational Query Languages : Relational Algebra, Structured Query Languages(SQL): *Select, Insert, Update, Create and Delete statements*.

Books Recommended :

1. Modern Database Management by Jeffrey A. Hoffer
2. Database Systems By Thomas Connelly
3. An Introduction to Database System by C.J Date. Addison Wesley.

BSC, ELECTRONICS

PART I & II COURSE OUTLINE

B.Sc Electronics Course Structure

COURSE OUTLINE OF ELECTRONICS AT B.Sc.LEVEL.

Paper-I	Linear Ckt. Analysis	30
Paper-II	Electronic Devices	30
Paper-III	Digital Electronics	30
Paper-IV	Electronics Communication	30
Practical Part-I		15
Practical Part-II		15
Total		150

Paper-I: Linear Circuit Analysis

Voltage

Definition of voltage, direct voltage, alternating voltage and voltage source. Concept of ground. Adding and opposing voltage sources.

Current

Definition of current. Direct current, Alternating current, Conventional current and Electronic current.

Resistor

Resistor , Resistance, Resistivity & Conductance. Linear & non-linear resistances. Color coding and tolerance. Ohm's law.

Series resistive circuits

Resistances in series. The concept of voltage drop, the Kerchief's voltage law, Voltage dividers. Short and open connections in series circuits.

Parallel resistive circuit.

Resistance in parallel. Kerchief's current law. Current divider. Concept of short and open connections in parallel circuits. Branch current analysis, node voltage analysis and mesh current analysis.

Network theorems

The superposition theorem, thevenin's theorem, Norton's theorem. Thevenin's & Norton's conversion.

AC Circuits

Graphical representation of AC voltage & current. The Sine wave(time period, frequency, wavelength and phase) , rms , peak & peak to peak values of a Sine wave.

Power

Definition of Power, power dissipation in resistors, power calculation in series & parallel resistive ckts. Maximum power transfer.

Inductance

Concept of induction, self inductance & mutual inductance. Inductances in series & parallel. Determination of sef inductance, mutual inductance & coefficient of coupling. Time constant. Principle of transformer. Inductive reactance.

Capacitance

Capacitance, factors affecting capacitance. Capacitors in series & parallel. Charging & discharging of a capacitor in RC ckt. Time constant. Capacitive reactance.

Inducters & capacitors in AC ckts

RC, RL & RLC series & parallel ckts. Impedance, phasors, phase angles, complex numbers, analysis of AC circuits with complex numbers. resonance, series & parallel resonance ckts. Acceptor & rejector ckts. Filters, low pass, high pass & band pass/stop filters. Differianting & integerating ckts.

Recommended Books

1. Thomas L. Floyd, Latest Edition "Principles of Electronics circuits".
2. Bernade Grobe, latest Edition "Basic Electronics".

Paper-II: Electronics Devices

Semi conductor diode

Band theory of solids. Classification of solids in conductors, semi conductors and insulators on the basis of band theory. Intrinsic and extrinsic semi conductors. p and n type semiconductors. The p-n junction. Characteristics of p-n junction diode.

Special purpose diodes

Zener diode, photo diode, light emitting diode, varactor diode, tunnel diode

Rectifier

Half wave, full wave and bridge rectifier, ripple factor.Voltage regulation, construction of regulated power supplies .

Bipolar junction transistor

Construction & operation of BJT. Alpha & Beta current gains. Common base, common emitter and common collector configuration of transistor. DC biasing of BJTs, Fixed biase, Emitter stabilized bias, Voltage divider biase & Feedback biase.

Amplifiers

.Class A amplifier & its efficiency, Transformer coupled class A amplifier& its efficiency, Class B & class B push-pull amplifier. Multistage amplifiers, gain of cascaded amplifier.

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Oscillators

Positive and negative feed back. Gain stability with negative feed back. Criterion for self sustained oscillations.

Hartley, Colpitt and Crystal Oscillators.

The operational Amplifiers

Differential amplifier and its various modes of operation. operational amplifier characteristics. practical operational amplifier circuits, Inverting and non inverting amplifiers. The comparator, the summing amplifier. Common mode rejection ratioCMRR..

Multi viberators

Astable, Mono stable and Bistable multiviberators. 555 Timer IC and its use as an Astable multiviberator.

Recommended book.

1. "Electronic Devices and Circuit Theory" by Louis Nashelsky and Rovert Boylestad, 7th Edition.
2. "Electronic Principles" by A.P Malvino.
3. "Basic Electronics" by B.L Theraja.

Paper III: Digital Electronics:

Number systems & Codes

Definition of number system, Decimal, Hexa-decimal, Octal & Binary number systems. Inter conversion of number systems. BCD, Gray, Excess-3 & ASCII.

Gates

Basic logic gates(AND, OR, NOT, XOR) , their logical function , symbols, Truth tables & algebric equations. Boolean algebra , NOR,NAND implementations. De Morgan's theorems, Duality theorem.

Karnaugh mapping.

Introduction to digital integrated circuit families

Levels of integration, Technologies & Families. The TTL Family, 7400 & 5400 devices, Types & Characteristics of TTL devices.

Combinational Logic Circuits

Designing procedure of combinational logic circuits. Half Adder, Full Adder, Half Subtractor & Binary Adder-subtractor. Decoders & Encoders. Multiplexers & De-Multiplexers.

Sequential Logic circuits

RS latches. Transistor latch, NOR latch, D latches, Unclocked, Clocked, edge triggered D flip flop, Edge triggered JK master-slave flip flop. The concept of register. Designing procedure of counters, The state table & diagram, Excitation table/ Transition table etc. buffer register and shift register. Tristate buffer and switches. Ripple counter and frequency division. Asynchronous and synchronous counter. Ring counter.The Mod N counter. Application of counters.

Memories

ROMs PROMS and EPROMS. The read write memory. Static RAM and Dynamic RAM. Application of memory.

Recommended books :

1. "Digital Computer Electronics" by Malvino. Brown.
2. "Digital Logic ad Design" by M. Moris Mano.
3. "Digital Fundamentals" by Thomas Floyd.

Paper IV: Electronics in Communication

Communication

Definition of communication. Communication system, information, transmitter, channel, receiver.

Noise

External noise, atmospheric noise, extra terrestrial noise, industrial noise. Internal noise, thermal agitation noise, shot noise, transit time noise, miscellaneous noise. Definition of signal to noise ratio and noise figure.

Modulation

Definition of modulation, Amplitude modulation, frequency spectrum of AM wave, representation of AM. Theory of Frequency and phase Modulation, mathematical and graphical representation of FM. Comparison of frequency and amplitude modulation. Pulse modulation.

Transmitter/Receiver

AM Radio transmitters and Receivers, superhetrodyne receivers, IF Amplifiers, Automatic Gain Control, Audio Amplifiers, Receiver Schematics. FM Detectors, FM Receiver.

Recommended Books:

1. "Electronic communication systems" by Kennedy. Davis.
2. "Essentials of communication Electronics" by M. Slurzberg & W. Osterfield, National Book Foundation Islamabad.

BSC, GEOGRAPHY

PART I & II COURSE OUTLINE

B.Sc Geography Course Structure

Part-I Total Marks = 75

Paper	Title	Theory Marks	Practicals Marks	
A	Physical Geography	40	15	
B	Map Work-I	20		
	Total Marks	60	15	75

Part-II Total Marks = 75

Paper	Title	Theory Marks	Practicals Marks	
C	Human and Regional Geography	40	15	
D	Map Work-II	20		
	Total Marks	60	15	75

Geography

B.A/ B.Sc. (3rd Year) Paper-A

Physical Geography = 40 Marks

LITHOSPHERE.

1. Principals Views regarding the origin of the earth, Continents and Oceans.
2. Material of the earth crust: Common rock forming minerals, Major rock types (Sedimentary, Metamorphic and Igneous) and their divisions, Architectural features of the earth's crust-joints, folds and faults.
3. Earth Movements: Secondary resulting from these movements.
4. The Main features of the Geological Time scale, Geomorphic processes, Weathering and mass movement.
5. A general study of Soils, Major soil groups.
6. Classification of river valleys, Drainage pattern, Stream erosion, Transportation and deposition, Land forms produced by erosion and deposition.
7. Methods of wind erosion, Transportation and exposition, Topographic effects of wind erosion and depositions.
8. Karsts Topography: Conditions essential for development, Features characteristics of Karst region
9. Types of Glaciers, Process of glacial erosion, Transportation and deposition, Majors features resulting from glacial erosion and deposition.
10. Marine erosion; Factors affecting wave motion, Topographic features resulting from marine erosion and deposition.
11. Land- forms resulting from volcanism: Distribution of volcanoes, Types of volcanoes.

ATMOSPHERE

1. Composition of the atmosphere.
2. Distribution of temperature: factors affecting horizontal distribution of temperature over the globe. Vertical distribution: The vertical gradient of temperature inversion of temperature.
3. Pressure: Barometric pressure, Gradient, Isobers, The origin of the difference of pressure and pressure belt.
4. Air Masses: Types, characteristics and distribution.
5. Winds: The relation of wind to pressure over the Globes, Major wind systems, Trades: Westerlies, Polars winds and Monsoon.
6. Minor circulation of the Atmosphere: Depression or Laws of the temperature and tropical latitudes, anticyclones.

7. Humidity and precipitation: Water vapors in air, absolute and relative humidity, dew point condensation forges, Rain fall types and general distribution.

HYDROSPHERE

1. General distribution of Land and Sea.
2. Relieme of the ocean floor-continental shelf, Slope and deep sea plain.
3. Ocean depositey terigenous and pelgaic.
4. Composition of Sea water: Temperature and salinity of the oceans.
5. Movement of the Oceans, Waves, Tides and currents.

BOOKS RECOMMENDED:

1. Philip Lake.
   Physical Geography, London-University Press, London.
2. W. Thorn bury,
   Principles of Geomorphology, Mac- Graw- Hill, New York.
3. Das Gupta,
   Physical Geography.
4. Monk House
   Physical Geography, Methuen Ltd, London.
5. A. Holmes,
   Principles of Geology, Methuen Ltd, London.
6. Wordridge and Morgan,
   Physical basis of Geography, Methuen Ltd, London.

PAPER-B **(Marks: 20)**

Map Work, I

Map Work and Map Reading

1. Scales and their transformation.
2. Representation of Direction.
3. The study and interpretation of Topography (Ordinance Survey) Maps of Pakistan.
4. Exercises on contours, Map construction from the given data.
5. Weather Maps of Pakistan: Pakistan Daily Weather Report.

Practicals and Field Work **(Marks 15)**

1. Working knowledge of the following :

   Barometer, Barograph, Anemometer, Maximum and Minimum Thermometer, Rain Gauge and Hydrometer.

2. Construction of the plan of a given area with :
   Chain and tape survey.

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BOOKS RECOMMENDED:

i) John Bygott: Map Work (University Tutorial Press).
ii) Kazi, S. Ahmad: Map Projections (Publishers United).
iii) R.K Singh and P.K Dutt: Elements of Practicals Geography (Students Friends Allahabad-3).

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Note:

The Practicals Work done by the candidates during their course of study, signed by the Teacher, Will be inspected and credit given for it.

Part-II
4th Year

Paper-C: HUMAN AND REGIONAL GEOGRAPHY

Section-I Human Geography:

i) Man and Environment Interaction.
Themes of Environment, Determinism, positivism and perception.

ii) Population.
Growth, Composition (age and sex structure), population change (natural increase and migration) and population distribution.

iii) Human settlement
Location, forms and functions of rural and urban settlements, Central place Theory.

iv) Economics Activity
Location and characteristics of Primary, Secondary, Tertiary, Quaternary and Quandary activities.

v) Environmental Problems
Eco-system and Environmental Degradation.

Section-II Regional Geography

i) Regional Concept.

ii) Study of Pakistan with special emphasis on Resource Base (Physical Human and Economics), Transport, Trade and International Relations.

Paper-D: **MAP WORK-II**

PRACTICAL

Old course for practical surveying and theory papers shall continue.

FIELD WORK

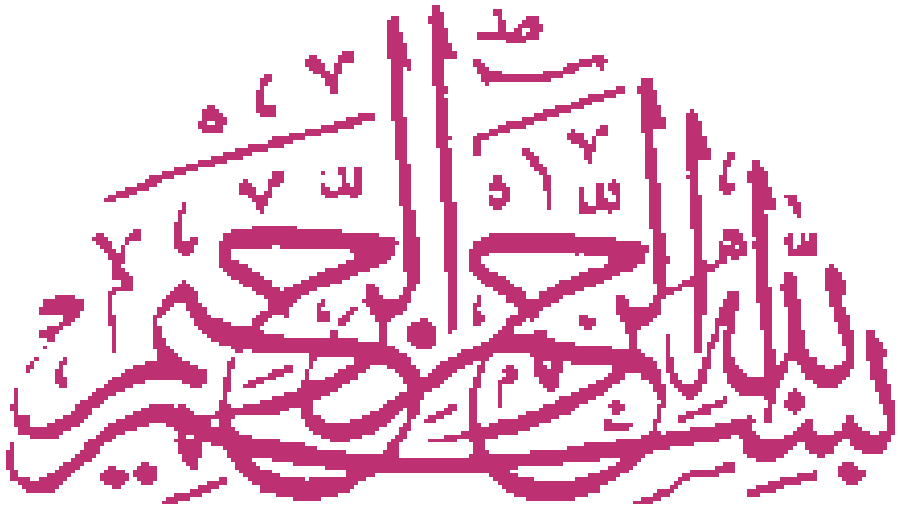
Writing of brief note on geographical or environmental problems of any locality.

Computer

Introduction to Computer's Hardware, Software & Computing.

General Recommendation:

1. Central Computer Laboratory must give Computer facility to Students of different discipline including Geography.
2. Refresher course in the following fields, should be arranged at regular intervals for college teachers to keep them abreast with the modern changes in the discipline:
    a) Human Geography.
    b) Field Study and Surveying Techniques.
    c) Computers and Basic Computing.
    d) Geographic Information System (GIS).
    e) Aerial Photography and Remote Sensing.
3. Geography must be treated at per with other basic sciences, as determined by the Higher Education Commission.
4. Publication and distribution of monographs and books, particularly of Human Geography.
5. Arrangement should be made for the Urdu translation of the recommended books in the curriculum.
6. At least two Teachers should be appointed at each degree college.
7. Geography, as a subject, should be introduced in such colleges (Old/ New) where it is not taught at present.
8. The retrenchment of post of Geography Teachers must be avoided.
9. Second time practicals may be avoided.
10. Funds allocated for Science equipment should be on the discretion of the Principal for the due share equipping Geography Labs.
11. The Controller of Examination of the UST, Bannu may allocate 8 to 10 candidate for each group at a time in B.A/ B.Sc Geography Practicals, while preparing date sheet for Practicals.



H & PHYSICAL EDUCATION

PART I & II COURSE OUTLINE

Health & Physical Education
Part I & II
Course Structure

Part	Paper	Paper Name	Marks
I	A	Physical Education	30
-	B	Health Education	30
Practical			15
Total Marks			**75**
II	C	Physical Education	30
-	D	Health Education	30
Practical			15
Total Marks			**75**

CURRICULUM FOR HEALTH & PHYSICAL EDUCATION AT BA/BSC LEVEL

INTRODUTION:

Finally, Physical Education has earned national level recognition and this subject is being introduced in the School right from 5th class as a compulsory subject. A SSC, Inter and Degree level, physical education has been given the status of a Science and the students can select Health & Physical Education along with other science subjects.

Graduate students coming form degree colleges are actual clients of the discipline of Health and Physical Education at University level therefore is quite obvious to bring some changes in the curriculum to cater up-to-date knowledge of the subject, meeting the current needs and requirements.

Perceived Objects:

The students opting the subject should become aware of the needs and requirement of their body for living more fit in this era of hard competition.

Study of the subject will enable the students to lead a disciplined life and set precedence for the others. They will become able to live a healthy and productive life not only for themselves but for the community as well and they could gain basic knowledge regarding health, personal hygiene and cleanliness etc.

THEORY:

Paper A (Physical Education) **Credit: 30 Marks**

BA/BSc Part-I (Third Year)

Unit-1 INTRODUCTION OF PHYSICAL EDUCATION

a. Definition of Physical Education.

b. Aims and Objectives of Physical Education.

c. Importance of Physical Education and Sports.

d. Relationship of Physical Education with general education.

Unit-2 DEVELOPMENT OF PHYSICAL EDUCATION IN PAKISTAN

a. Brief Historical Background of Physical Education.

b. Physical Education in Pakistan: Past, Present and Future.

Unit-3 ISALAMIC PERSPECTIVES OF PHYSICAL EDUCATION AND SPORTS

a. Place of Physical Education and Sports in Islam with reference to Quran and Sunnah.

b. Relationship of the following with Physical Education and Sports.

(i) Namaz
(ii) Roza
(iii) Hajj
(iv) Jehad

Unit-4 SCIENCE OF MOVEMENT

a. Definition and types of movement

b. Need and importance of movement

c. Some factors effecting movements i.e. Gravity, Mass, Friction and Air Resistance.

Unit-5 PHYSICAL FITNESS

a. Definition of Physical Fitness.

b. Importance of Fitness.

c. Component of fitness.

(i) Muscular Strength
(ii) Muscular endurance
(iii) Cardio-Vascular.

Unit-6 FUNDAMENTALS OF SPORTS

a. Values of Sports and Games
b. Importance of Sports and Games
c. Qualities of good sportsmen
d. Rules and specifications of Ground/courts in Games.
    (i) **Boys**
    Foot Ball, Volley Ball, Basket Ball,
    (ii) **Girls**
    Volley Ball, Table Tennis, Badminton

e. Rules and specifications in Track and Field.
    (i) Layout of 400-meter standard track
    (ii) Track and field events.
    Track Events: 100 M, 110 M hurdle and 4x100 M relay for Male & Female.
    Field Events: Shot put, Javelin Throw, Broad Jump.
    (iii) Introduction to National Games Pakistan Olympic Association (POA), Pakistan Cricket Board (PCB), Pakistan Armature Athletics Federating (PAAF).

Paper B (Health Education) **Credit: 30 Marks**

BA/BSc Part-I (Third Year)

Unit-1 INTRODUCTION TO HEALTH EDUCATION

a. Definition of Health.
b. Importance of Health Education.
c. Aims & Objective of Health Education.

Unit-2 ISLAM AND HEALTH EDUCATION

a. Islamic Perspectives of

(i) Physical Health
(ii) Mental Health
(iii) Community Health
(iv) Safety Education

Unit-3 BASIC ANATOMY AND PHYSIOLOGY

Anatomy & Physiology of the following system

a. Skeletal System
b. Muscular System
c. Digestive System

Unit-4 EFFECTS OF EXERCISES ON SYSTEMS OF THE BODY

a. Skeletal System
b. Muscular System
c. Digestive System

Unit-5 PERSONAL HYGIENE

a. Definition and importance of personal hygiene.
b. Different aspects of personal hygiene (cleanliness)

Unit-6 a. Component of Food

(i) Carbohydrates

(ii) Proteins

(iii) Vitamins

(iv) Minerals

b. Balance Diet

Definition of balance diet, Importance, Constituents of balance diet.

Unit-7 INJURIES IN VARIOUS GAMES AND THEIR FIRST AID

a. Injuries in football, Hockey, Cricket, Basketball.

b. First Aid for the above injuries.

REFERENCES:

1. Charles. A. Bucher, “Foundation of Physical Education”
2. Clayn Gordon and Blauer, “ Applied Kinsiology and Biomechanics”
3. Dr. Abdul Waheed Mughal, Officiating”
4. Harold A.B.D. “Man and Movement & Physical Education”
5. Pater Loversy, “Immature Athletics Federation”
6. R.B.Goel “Sports and Games”
7. Seaton and Clayton, “Sports Activities for Men”
8. A Burger Ph.D, “Applied Exercise Physiology”
9. Anderson, Community Health”
10. Dr. S.K.S. Shah, “Synopses of Hygiene”
11. Wyneberge, “Human Anatomy and Physiology”
12. **Basharat Hussain Gillani, “Gillani Publishers, Multan**”
13. **Malik Asif, “Classic Publishers, Nowshera”**

PRACTICALS

BA/B.Sc Part-I (Third Year) **Credit: 15 Marks**

SKILL AND PROFICIENCY IN GAMES

(i) **Boys**

Foot Ball, Volley Ball, Basket Ball,

(ii) **Girls**

Volley Ball, Table Tennis, Badminton

SKILL AND PROFICIENCY IN TRACK & FIELD

Races: 100M, 400M, 110M hurdle, and 4x100M relay

Jumping & Throwing Events: Shot put, Javelin Throw Broad Jump.

SKILL AND PROFICIENCY IN GYMNESTIC

Front Roll, Back Roll, Hand Stand, Arch

PATTERN OF SETTING THE QUESTION PAPERS

All the papers i.e. Paper A & B for Part-I (Third Year) will consist of Nine Questions in total. All the questions will carry equal marks i.e. a maximum of 06 (Six) for each question.

Specimen Paper

BA/B.Sc Part -I

Paper-A (Physical Education)

Paper-B (Health Education)

Max Marks 30 **Time allotted 3 Hours**

Note: attempt Five Question. All question carry equal marks.

Question 1. ---------- (06)

Question 2. ---------- (06)

Question 3. ---------- (06)

Question 4. ---------- (06)

Question 5. ---------- (6)

Question 6. ---------- (06)

Question 7. ---------- (06)

Question 8. ---------- (06)

Question 9. ---------- (06)

B.A / B.Sc Part-II (Fourth Year)

Paper C (PHYSICAL EDUCATION) **Credit: 30**

Marks

Unit-1 SPORTS TRAINING AND TRAINING METHODS

(I) Definition of Sports training

(II) Aims and Objectives of sports training.

(III) Characteristics of Sports training.

(IV) Principles of Sports training.

(V) Training Methods.

Unit-2 WARMING UP AND COOLING DOWN

(i) Definition of Warming up.

(ii) Types of Warming up.

(iii) Significance of Warming up.

(iv) Methods of Warming up.

(v) Components of Warming up.

(vi) Definition of Cooling down.

(vii) Significance of Cooling down.

Unit-3 PSYCHOLOGICAL BASIS OF PHYSICAL EDUCATION

(i) Definition of Psychology.

(ii) Definition of Sports Psychology.

(iii) Psychological factors effecting Physical performance.

(iv) Definition of Learning.

(v) Laws of Learning.

Unit-4 ENVIRONMENTAL FACTORS AND SPORTS PERFORMANCE

(i) Exercise / Competition in Heat.

(ii) Disorders and acclimatization to Heat.

(iii) Exercise/ Competition in Cold.

(iv) Disorders and acclimatization to Cold.

(v) Exercise / Competition at Altitude.

(vi) Disorders and acclimatization at Altitude.

Unit-5 Recreation

(i) Definition of Reaction.

(ii) Objectives of Reaction.

(iii) Importance of Reaction.

(iv) Types of Reaction.

Unit-6 FUNDAMENTALS OF SPORTS

(**a) Systems of Tournament.**

(i) Knock out system (Elimination).

(ii) League system (Round Robin).

(iii) Combination System.

(b) Rules and specification of Grounds/ Courts in Games.

(1) Boys

Hockey, Cricket, Handball

(2) Girls

Hockey, Handball, Netball

(c) Rules and specification in Track and Field.

(1) Track events

200m, 800m, 400m Hurdle, 4x400m Relay race

(2) Field events

Discus throw, High jump, Triple jump

(d) Introduction to

IAAF, Olympic games, Asian games, SAF games

Paper D **(HEALTH EDUCATION)** **Credit: 30 Marks**

Unit-1 **DRUGS AND DOPING**

(i) Meaning of Drugs.
(ii) Uses of drugs by sports persons.
(iii) Harmful effects of drugs.
(iv) List of selected drugs used by sports persons.
(v) Treatment for drugs addicts individuals
(vi) Meaning of Doping.

Unit-2 **HOUSING AND HEALTH**

(i) Requirements of Healthful house.
(ii) Effects of Bad housing
(iii) Sanitation of Locality.
(iv) Sanitation of school and college.

Unit-3 **BASIC OF ANATOMY AND PHYSIOLOGY**

Anatomy and Physiology of the following systems.

(i) Respiratory systems.
(ii) Blood Circulatory systems.
(iii) Nervous systems.

Unit-4 **EFFECTS OF EXERCISE ON THE BODY'S SYSTEMS**

(i) Respiratory systems.
(ii) Blood Circulatory systems.
(iv) Nervous systems.

Unit-5 **COMMUNICABLE DISEASES**

Symptoms, causes and prevention of

(i) Typhoid.

(ii) Malaria.

(iii) Cholera.

(iv) Tuberculosis.

(v) Poliomyelitis.

(vi) Diphtheria.

Unit-6 POSTURE AND POSTURAL DEFECTS

(i) Definition of posture and good posture.

(ii) Importance of good posture.

(iii) Poor or bad posture, causes of bad posture.

(iv) Common postural defects(Kyphosis, Lordosis, Scoliosis, Flat foot)

(v) Causes and Remedial exercises for postural defects.

Unit-7 MASSAGE

(i) Definition of Massage.

(ii) Utility and Importance of Massage.

(iii) Principles of Massage.

(iv) Facilities and equipments for Massage.

(v) Contradiction of Massage.

(vi) Methods of Massage.

BOOKS RECOMMENDED

(1) Dick, Frank W (1980) “Sports Training Principles” London: Lepus Books

(2) Singh, “ Hardyal(1991) “ Science of sports Training” New Delhi DVS publication

(3) Fox, Edward L (1984) “Sports Physiology” Halt:CBS College Publications.

(4) Mathews, Donald K. and Fox Edward L. “The Physiological Basis of Physical Education and Athletics. Saunder Japan 1985.

(5) Butler, George D. “Introduction to community Recreation” Hill Book Company New York 1959.

(6) Ruth Medley “ Rules of Games”

(7) John Heaton Better Athletics Field.

(8) Ghosh Aloke, Hand Book of Sports Medicine and Physical Fitness. Allied Book agency, Culcutta, 1980.

(9) King and Shower “ Anatomy and Physiology”

(10) M. Saleem Akhter “ Modern Health Education”

(11) Soloman and Davis “ Human Anatomy and Physiology”.

PRACTICALS

BA/B.Sc Part-II (Fourth Year) **Credit: 15 Marks**

SKILL AND PROFICIENCY IN GAMES

(i) **Boys**

Squash, Cricket, Hockey, Badminton

(ii) **Girls**

Handball, Cricket, Hockey, Badminton

SKILL AND PROFICIENCY IN TRACK & FIELD

Races: 200M, 400M, 110M hurdle, and 4x100M relay

Jumping & Throwing Events Discus throws, High Jump, Triple Jump.

SKILL AND PROFICIENCY IN GYMNESTIC

Head Stand, Summer Sault, Balancing exercises

PATTERN OF SETTING THE QUESTION PAPERS

All the papers i.e. Paper C& D for Part-II (Fourth Year) will consist of Nine Questions in total. All the questions will carry equal marks i.e. a maximum of 06 (Six) for each question.

Specimen Paper

BA/B.Sc Part -II

Paper-C(Physical Education)

Paper-D(Health Education)

Max Marks 30 **Time allotted 3 Hours**

Note: attempt Five Question. All question carry equal marks.

Question 1. ---------- (06)

Question 2. ---------- (06)

Question 3. ---------- (06)

Question 4. ---------- (06)

Question 5. ---------- (6)

Question 6. ---------- (06)

Question 7. ---------- (06)

Question 8. ---------- (06)

Question 9. ---------- (06)

B.COM PART I & II COURSE OUTLINE

B.Com
Part I & II
Course Structure

Paper	Part I Papers/Subjects	Theory	Practical	Total
I	Modern Accountancy	100	-	100
II	Mathematical Analysis for Commerce	100	-	100
III	Economics	100	-	100
IV	Introduction to Business	100	-	100

V	Banking & Finance	100	-	100
VI	Business English	100	-	100
VII	Computer Applications in Business	70	30	100
VIII	Islamic Studies	60	-	60
Total Marks				**760**

Paper	**Part II Papers/Subjects**	**Theory**	**Practical**	**Total**
I	Advanced Accounting	100	-	100
II	Cost Accounting	100	-	100
III	Business Law	100	-	100
IV	Auditing	100	-	100
V	Economics of Pakistan	100	-	100
VI	Accounting Information System	70	30	100
VII	Statistical Methods	100	-	100
VIII	Pakistan Studies	40	-	40
Total Marks				**740**

Scheme of Studies for B.Com Programme

B.Com Part-I (Details of Course Outlines)

B.Com **Part-I**

Paper—I **Modern Accountancy** **Total Marks: 100**

1 **Introduction to Accounting:** Basic Accounting Terminologies, Accounting Cycle, Book Keeping—the Basis of Accounting. Accounting Mechanics—Double Entry System. Classes of Accounts—Personal Accounts, Real Accounts, Nominal Accounts, Valuation Accounts. Rules for Debit & Credit.

2 **Journal** & **Ledger:** The Journal—Advantages & Sub Division of Journal. Vouchers, Ledger, Sub Division of Ledger, Standard Form of Ledger Account, Sequence & Number of Ledger Account, Running Balance form of Ledger Account, The Mechanics of Posting, and Balancing Ledger Accounts.

3 **The Trial Balance:** Definition, Objectives, and Defects of a Trial Balance. Errors Disclosed by a Trial Balance. Errors Not Disclosed by a Trial Balance. Construction of a Trial Balance. Methodology of Correcting Errors, Suspense Account. Rules for Trial Balance Preparation. Accounting Treatment for Closing Stock in Trial Balance. Correction of

Trial Balance. The Adjusted Trial Balance.

4 **Accounting Concepts *&* Conventions:** Popular Concepts Used in Accounting Literature: Business Entity. Money Measurement, Dual Aspect, Going Concern, Periodicity, Consistency, Materiality, Historical Cost, Conservatism, Realization, Accrual, and Matching Concept. International Accounting Standards-1 (Revised 1997).

5 **Cash Book:** Definition, Features, and Kinds of Cash Book. Preparation of Cash Books (All Types). Cash Book as Only Book of Original Entry.

6 **Bank Reconciliation Statement:** Definition, Causes of Difference b/w Bank Book & Pass Book. Need for Bank Reconciliation Statement. Preparation of Bank Reconciliation Statement:

(a) When Causes of Differences are given

(b) When Causes of Differences are not Given, but Extract of the Cash Book and Pass Book are Given.

(c) Using the Accountant's Method (Finding the Correct Bank Balance)

Subsidiary Books of Account: Subdivision of Journal, Purchase Day Book, Sales Day Book, Sales Day Book with Sales Tax Column, Purchase and Sales Returns Books, Bills Receivable & Payable Books, Journal Proper/General Journal.

8. **Capital *&* Revenue Items:** Capital & Revenue: Expenditure, Receipts, Profits, Losses, and Deferred Revenue Expenditure (Rules and Accounting. Treatment)

9. **Bad Debts, Provision for Bad Debts and Doubtful Debts:** Introduction, Estimating Bad Debts, Effects of not providing for future bad debts, Accounting for bad debts, Accounting for Provision for bad debts, Provision for discount on debtors, Reserve for discount on Creditors, Recovery of Bad Debts, and Treatment of Bad Debts Recovery in the Books of Buyer.

10. **Depreciation:** Introduction, depreciation is an Expense, Objects of Providing Depreciation, Effects of not Providing Depreciation, Factors in the Measurement of Depreciation, International Accounting Standard—16 (Revised 1998), The Accounting Concept of Depreciation, Important Terms Regarding Depreciation. Methods of Depreciation (The Straight Line Method, The Diminishing Balance Method, Sinking Fund Method, Depletion Method. Factors to be considered in selecting a Depreciation Method. Intangible Assets & Depreciation (Patents, Trade Marks, and Copy Rights). Depreciation and Materiality concept. Profit and Loss on Disposal of Fixed Assets. Exchange of Used Asset with New Asset/Trade-in. Change of Method of Depreciation. Depreciation—A Source of Fund or Not.

11. **Inventories:** Introduction, Objectives of Accounting for Inventories. Methods of Recording Closing Stock. Effects of an Error in Valuing Inventory. Accounting for Inventories: Perpetual 7 Physical Inventory Method, Inventory Valuation, Choice among the Flow of Cost Methods—Specific Identification Method, FIFO Method, LIFO Method, Weighted Average Method, Moving Average Method. International Accounting Standard-2 (Revised 1993). Problems of Stock Taking.

12. **Bills of Exchange:** Definition and Types of a bill of exchange. Difference b/w Bill of Exchange & Promissory Note. Parties to a bill of exchange.

Bill Receivable & Bill Payable. Due Date of a bill of exchange. Methods of Dealing with a bill of exchange by the Drawer. Dishonor of a bill, Noting charges, Insolvency, Renewal, and Retiring a Bill. Accommodation Bill.

13. **Consignment Account:** Definition, Features, and Importance of Consignment Business. Accounting Entries in the Books of Consignor and Consignee, Important Terms used in Consignment Business. Ascertaining the Profit or Loss made on Consignment Account. Other Important Accounts in the Books of Consignor and Consignee.
14. **Final Accounts:** Trading Account, Profit and Loss Account, Adjustment Items at end of the year. Balance Sheet, Form of a Balance Sheet. Assets and their Classification, Liabilities & their Classification. Uses of Balance Sheet, Limitations of Balance Sheet.
15. **Rectification of Errors:** Definition, Types, and Rectification of Errors before & after Trial Balance Preparation. Suspense account. Rectification of Errors after preparation of Final Accounts.
16. **Accounting for Non-Profit Organization:** Accounting Procedure. Preparation of Income & Expenditure. Receipt & Payment Account Vs: Income & Expenditure Account.

Text Book:

1. **Modern Accountancy Volume 1, by M. Hanif Khan & A. Mukher Jee.**

B.Com **Part-I**

Paper—II **Mathematical Analysis for Commerce** **Marks: 100**

1. **Basic Algebra** :(i) Introduction (ii) Operations with algebra (iii) symbol of Grouping (iv) Factorization (v) Algebraic Functions.
2. **Set Theory:** Introduction, Diagrammatic Representation of sets, Union & Intersection of sets. Properties of sets.
3. **Equations:** Solution **of Simple Equations.** Basic Concepts. Operation on an Equation. Statement Problems. (With One-Variable, Two -Variables, and Three-Variables). **Simultaneous Equations**—Form & Solutions. Equations with Two- & Three-Variables. **Quadratic Equations**—Solution by Factorization, by Completing Square and Quadratic Formula Methods. Applications in the Field of Commerce.
4. **Sequence, Series and Progression:** Arithmetic Progression, Geometric Progression and their Application in Commerce.
5. **Matrix Algebra:** Addition, Subtraction, and Multiplication of Matrices, Determinants and their Expansion, Finding Inverse of a Matrix, Use of Matrices in the Solution of System of Linear Equations
6. **Differential Calculus:** Differentiation of Functions (Definition Rule, Power Rule/Sum Rule, Chain Rule, Product Rule, Quotient Rule, Exponential Rule, Logarithmic Rule), Application of Derivatives in Business/Commerce to find out Marginal Profit/Cost Levels of Sales and Production, Finding Maxima, Minima, and Inflexion Points of a Function by using Derivatives, Partial Derivatives Calculation.

Text Books:

1. Business Mathematic for Management & Finance by Sayed Hassan Ali Mirza (Latest Edition)
2. **Further Readings:**
   Business Mathematics by L.W. Stafford

B.Com **Part-I**

Paper—III **Economics** **Marks: 100**

1. **Introduction:** Definition, Nature, Scope and Importance of Economics, the Concept of Micro and Macro Economics, Description, Analysis and Policy, Economic Methodology.
2. **Consumer Behaviour:** Definition and Meaning, of Consumer Behaviour Marginal Utility, Law of Diminishing Marginal Utility, Consumer's Surplus, Indifference Curve Approach.
3. **Demand:** Definition, Law of Demand, Changes in Demand. Elasticity of Demand and its Measurement.
4. **Supply:** Definition, Law of Supply, Changes in Supply, Elasticity of Supply, Demand & Supply Relationship.
5. **Equilibrium Analysis**
6. **Production:** Concept of Factors of Production, Definition and Meaning of Land, Labour, Capital, and Entrepreneur, Laws of Return and their Application to Agriculture Sector.
7. **Costs:** Costs over time period, Fixed, Variable, Total, Average, and Marginal.
8. **Market:** Perfect and Imperfect Competition, Price and Output determination under PERFECT AND Imperfect Competition, Market Price and Normal Price. Monopoly, Oligopoly, Duopoly and Price Control (Basic Concepts)
9. Factor Pricing: Rent, Wages, Interest and Profit.
10. **National Income:** Concepts of National Income—GNP, Circular Flow of

National Income. Measurement of National Income, National Income at Market Price and at Factor cost. Measurement of National Product in Current Price and in Constant Prices.

11. **Money:** Evolution, Forms, Functions, Importance and role of Money.
12. **Value of Money:** Quantity Theory of Money, Cash Balance Theory of Money. Measurement of Value of Money. Devaluation of Money.
13. **Trade** Cycle: Phases, Causes and Remedies. Theories of Trade Cycle.
14. **Inflation:** Kinds, Causes, and Remedies of Inflation.
15. **Balance of Payments:** Balance of Trade, Balance of Payments. Causes of Disequilibrium and Measures.
16. **Public Finance:** Meaning, of Public Finance. Difference b/w Private and Public Finance. Income and Expenditure of Public Bodies. Kinds of Taxes and Cannons of Taxes.
17. **Economics in Islam:** Economic Role of State in Islam, Zakat, and Usher.

Books Recommended:

1. Economics, by Muhammad Irshad Naveed Publications Lahore.

2. A Textbook of Economics, by M.A. Saeed Nasir, Ilmi Kutab Khana Lahore.
Economics by Paul A Sameulson.

B.Com **Part-I**

Paper—IV **Introduction to Business** **Marks: 100**

1. **Business:** Meaning, Nature, Scope, and Importance of Business. Problems, Functions, and Qualities of a Businessman. Types of Businesses
2. **Sole Proprietorship:** Definition, Features and Importance of Sole Trader ship. Merit and Demerits.
3. **Partnership:** Definition, Features and Importance of Partnership. Merits and Demerits. Difference b/w Partnership and Co-ownership. Classification of Partners. Rights, Duties, and Liabilities of Partners. Dissolution of Partnership.
4. **Joint Stock Company:** Definition, Features, Importance, Merits and Demerits of a Joint Stock Company. Formation of a Company. Prospectus, Memorandum of Association and Articles of Association. Different Classes of Shares and Capital of a Joint Stock Company. Different Types of Companies. Management, Meetings, and Winding up of a Company.
5. **Co-operative Society:** Definition, Features, Kinds, Merits and Demerits of a Cooperative society.
6. **Combination:** Meaning, Causes, Purposes, Advantages, and Disadvantages of Business Combination. Types and Forms of Combination.
7. **Trade:** Meaning and Different types of Trade, Definition and Features of Wholesale, Retail, Import, Export and Re-export Trade. Export Promotion Bureau and its Role in Promoting Pakistani Exports. Import and Export Procedures.
8. **Marketing Operation:** Definition, Functions, Scope, Advantages, and Disadvantages of Marketing. Difference b/w Marketing and Selling.
9. **Channels of Distribution:** Meaning, Functions, and Kinds of Distribution of

Channels. Selection of Channels and Advantages.

10. Sales Promotion: Meaning, Objects and Methods.

11. **Advertising:** Meaning, Objects, and Types of Advertising. Merits and Demerits. Of Advertising. Meaning and types of Advertising Media.

12. **Warehousing:** Definition, Functions and Kinds.

13. **Business Risk:** Definition, and Types of Business Risk, Methods of Handling Business Risk.

14. **Insurance:** Meaning, Principles, Kinds and Importance of Life, Fire, and Marine Insurance.

15. **Management:** Definition and Importance of Management. Basic Functions of Management.

Books Recommended:

1 Introduction to Business, by M.A. Saeed Nasir (Latest Edition)
2 Introduction to Business, by M.H. Ali (Latest Edition)
3 Introduction to Business, by M. Irshad (Latest Edition)

B.Com **Part-I**

Paper—V **Banking & Finance** **Marks: 100**

Section—A: Banking

1. **Introduction:** Evolution, Kinds and Features of Banks. Non-Banking Financial Institutions (Meaning and Role)
2. **Commercial Bank:** Definition, Importance, Role, and Functions of Commercial Banks.
3. **Bank Accounts:** Meaning and Types of Bank Accounts (Current. PLS, Term Deposit, Foreign Currency Accounts). Procedure for Opening Different Types of Bank Accounts. Banker and Customers Relationship.
4. **Kinds of Bank Advances and Loans:** Running Finance, Cash finance, Demand Finance, Term Finance, Discounting of Bills, Purchase of Bills. Principles of Advances. Securities and its Kinds, Modes of Lending, Trade Financing.
5. **Letters of Credit:** Kinds, Operations and Advantages of L.C.
6. **Central Bank:** Definition, Role, and Functions of a Central Bank. Role and Functions of the State Bank of Pakistan. Monitory Policies
7. **Banking in Pakistan:** Brief History, Nationalization, and Privatization of Banks in Pakistan. Definition and Role of ADBP, IDBP, DFIs (Development Finance Institutions), PICIC, and SMB.
8. **Islamic Banking:** Definition, Functions, and Principles of Islamic Banking in Pakistan. Modes of Islamic Finance.

Section—B Finance

9. **Finance:** Definition, Components, Kinds, and Sources of Finance. Advantages & Disadvantages of Different Sources of Finance. Lease Finance, Time Value of Money.
10. **International Monitory System:** IMF, IBRD, ADB, and IDB.
11. **Plastic Money:** Meaning, Importance, Kinds and Functions of Plastic Money. Role of Plastic Money in the Present Day Economies. Debit cards; Credit Cards, ATM Card and their Operation.

Books Recommended:

1 Money & Banking, by M. Saeed Nasir, Kitab Markaz Faisalabad.
2 Money & Banking, by M. Irshad Banking and Finance in Pakistan, by S.A. Menai, Oxford University Press Karachi

B.Com **Part-I**

Paper—*VI* **Business English** **Total Marks: 100**

Part—A _____ (50 Marks) _____ Practical Grammar

1 **Vocabulary:** Antonyms, Synonyms, Homonyms, One word substitution.
2 **Sentence Structure:** Types of Sentences Based on Function and Based on Structure. Transformation and Inversion of Sentences.
3 **Parts of a Sentence:** Subject. Predicate, Complements, direct, Indirect
Objective, Rules for Structuring, Sentences.
4 **Phrases:** Types and Functions of Phrases.
5 **Clauses:** Types and Functions of Clauses.
6 **Parts of Speech: (a) Major Word Classes: Nouns—**with further
classifications (Regular, Countable, Uncountable, Singular, Plural). **Pronouns**—with further classification. **Verbs** (Three Forms of Verbs).
Adjectives—with further classification (Three degrees of Comparison).
Adverbs—With further classification, (b) **Minor word Classes: Preposition. Conjunctions**—with further classifications: Interjections.
Auxiliary Verbs, Determiners, Infinitive, Participle, Gerund, Genitives—
Types & Functions.

7 **Tenses:** Types, Structure, Functions, Conversion into negative and interrogative.
8 **Active and Passive Voice**
9 **Direct & Indirect Speech**
10 **Articles:** Definite & Indefinite.
11 **Composition and Comprehension:** Precise Writing & Essay Writing (Business & Commerce Topics).

Part—II (50 Marks) Business Communication & Report Writing

1 **Introduction:** Meaning and Importance of Business Communication.
2 **The Process of Communication & Miscommunication:** Elements of Communication, General Communication, Concepts and Problems, Nonverbal Communication.
3 **Principles of Business Communication:** Seven C's of Business Communication.
4 **Process of Preparing Effective Business Messages;** All relevant Steps.
5 **Direct Request Letters Writing:** Direct Request Letters for Enquires, Claims, Adjustments, Routine Business Invitations, Orders, and Reservations.
6 **Sales Letters:** Solicited and Unsolicited Sales Letters Writing.
7 **Collection Messages:** Attitude and Stages in Preparing Effective Collection Messages.
8 **Official Letters Writing:** Parts and Composition. Preparing Effective Official Letters, Memos, and E-Mails
9 **Job Application, Resume.**

Books Recommended:

Part—I (Grammar Part)

1. Functional English, by Sheikh Attaur Rehman.

2. Functional English, by A.R.Chohan.

Part—I (Business Communication & Report Writing)

1 Effective Business Communication and Report Writing, by Sh: Attaur Rehman.
2 Business Communication Today, By Bovee.

B.Com Part-I

Paper—VII **Computer Applications in Business**

/ **Theory: 70**

Section—A (Theory Portion: 70 Marks) **Practical: 30**

Total Marks: 100

1 **Introduction to Computer Fundamentals:** History of Computers, Generations of computers, **Types of Computers:** According to the Purpose. **Classification of Computers:** According to the Size and Storage Capacities. **Meaning** of Computer **Hardware & Software. Physical Components** of a Computer System (Input/Output Devices, CPU, **Internal Memory: ROM & RAM, External Memory and Storage Devices:** (CD-ROM, Floppy Diskette, Hard Disk, Memory Chips). **Types of Software:** Operating Software (DOS & Windows), Application Software, and Utility Programmes. **Programming Languages:** Low Level, High Level, Procedural & Non-procedural Languages. Object Oriented and Database Query Languages. Compiler, Interpreter, and Assembler. Common Terminologies used in Computer Field.

2 **Data Processing:** Meaning and Difference b/w Data & Information. Meaning of Data Processing and Life Cycle of Data Processing. How Data Become Information. The Need of Data Processing in Business Organizations.

3 **Basics of MS-Windows:** Introduction, Desktop, Task Bar, Display Properties, Moving of Windows, Resizing of Windows, Changing Background, Screen Saver Setting, Minimizing & Restoring of Windows, Control. Panel (Printer Setting, Mouse Setting, Regional Setting, Time & Date Setting).

4 **Computer Networking:** Meaning & Types of Networking: LAN, MAN, WAN. Communicational Channels: Analogue & Digital Transmission.

5 **Internet & E-Mail:** Concept of Internet. Services Provided by Internet. Web Browser and its Types. Using a Web Browser, Address Bar, Refresh and Stop. Use of Search Engine. Saving Information from the Internet (Downloading). E-Mail Concept: Creation of E-Mail Account of Free Web Servers. Sending and Receiving E-Mails. Difference b/w ISP and Free Server Mail Account.

Section—B (Practical Portion: 30 Marks)

1 **MS-Office:** Word, Excel, Power Point, Access, and Outlook
(All Essential Menus and Commands will be Taught Practically in Computer Lab :)

2 **Internet Practical**

Books Recommended:

1 Computer Applications in Business, by Dr. Liaqat Ali and S.Asghar Ali Bukhari. Mubeen Mehmood & Co.

2 Short & Simple Guide: Find What You Need Fast, by Nuqoosh Software Learner Lahore.

B.Com **Part-I**

Paper—VIII **Islamic Studies** **Total Marks: 60**

Islamic Studies as for B.A./B.Sc. Examination.

Or

Ethical Behaviuor (For Non-Muslim Students) as for B.A./B.Sc. Examination

New Scheme of Studies for B.Com Part—II

B.Com **Part—II**

Paper—II **Advanced Accounting** **Total Marks: 100**

1. **Joint Venture Accounts:** Definition and Features of a Joint Venture. Difference b/w Partnership and Joint Venture. Methods of Keeping Accounts—Separate and No-Separate Books Method. Memorandum Account Method. Valuation of Unsold Stock.
2. **Average Due Date and account Current:** Definition and Steps for Calculation of Average Due Date. Due Date of a Bill of Exchange. Average due date as the Basis for calculations of Interest. Definition and Calculation of Account Current.
3. **Single Entry System:** Pure, Simple, and Quasi Single Entry System. Characteristics of Single Entry System. Limitations of Single Entry System . Difference b/w Single Entry System & Double Entry System. The Transaction Approach. The Balance Sheet Approach. Steps for Ascertaining Profit/Loss. Difference b/w Statement of Affairs and Balance Sheet. Conversion into Double Entry System.
4. **Partnership (Appropriation of Profit *&* Loss):** Definition, Features of Partnership. Partnership Deed. Kinds of Partners. Registration of Partnership Firm. Partner's Capital Account. Interest on Capital. Partner's Salaries, Commission, etc. Partner's Drawings and Loan Account. Sharing of Profit and Losses. Guarantee of Profits to or by a Partner.
5. **Partnership (Admission of a Partner):** Meaning. Adjustment in regard to Profit-Sharing Ratio & Good will. Types of Good will. Valuation of Non-Purchased Goodwill. Treatment of Goodwill on Admission of a New Partner. Adjustment in regard to Revaluation of Assets and Liabilities. Adjustment in regard to Undrawn Profits. Adjustment in regard to Partner's Capitals. Adjustment of a partner during an Accounting Year.
6. **Partnership (Retirement):** Adjustment in regard to Goodwill, Revaluation of Assets & Liabilities, and Undistributed Profit. Computation of Retiring Partner's Interest. Mode of Payment of Retiring Partner's Interest. Unsettled Account of a Retiring Partner. Admission-cum-Retirement.
7. **Partnership (Death):** Finding Financial Interest Unsettled Account of a Deceased Partner.
8. **Partnership (Dissolution):** Dissolution by the Partner and by the Court. Steps in the Dissolution Process. Settlement of Accounts. Accounting Entries for dissolution—When All Partners are Solvent, when some are Insolvent; When All the Partners are Insolvent. Note: Gradual Realization of Assets and Piece Meal Distribution are excluded.
9. **Company Final Accounts:** Definition and Features of a Joint Stock Company. Kinds of Companies. Shares and Debentures. Share Capital of a Company. Types of Shares. Books of Accounts kept by a Company. Statutory Books. Annual Account & Balance Sheet. Forms & Contents of Balance Sheet and Profit & Loss Account. Requirements as to Profit & Loss Account. Some Special & General Points regarding Profit/Loss Account of a Company. Typical Year-End Adjustments in Problems of Company Final Accounts. Profit & Loss Appropriation Account.

10 **Contract Accounts:** Nature & Definition. Work in Progress. Profit on Incomplete Contract. Estimated Profits. Preparing Contract Account and other important ledger Accounts in the Books of Contractor.

11 **Ratio Analysis:** Meaning, Importance and Limitations of Accounting Ratios. Various Accounting Ratios—Return Ratios, Profitability Ratios, Turnover Ratios, Equity Ratios, and Liquidity Ratios. Average Collection Period, Dividend paid to Profit Earned Ratio, Operating & Financial Leverage, Earning per Share Ratio. Predictability of Insolvency on the basis of Ratios.

Text Books:

1. Modern Accountancy (Volume 1), By M. Hanif & A. Mukhurjee.
2. Advanced Accounts, by M.C. Shukla and T.S. Grewal.

B.Com **Part—II**

Paper—II **Cost Accounting** **TotalMarks:100**

1 **Introduction:** Meaning, Definition, Importance, & Scope of Cost Accounting. Difference b/w Cost and Financial Accounting.

2 **Elements of Cost:** Meaning and Definition of Important Cost Elements. Preparing Cost of Goods Manufactured & Sold Statement and Income Statement. Cost Flow and Cost Cycle.,

3 **Cost Concepts, Uses and Classification:** Meaning, & Importance of Cost Classification. Meaning & Uses of Cost. Calculation of Prime Cost, Conversion Cost, Manufacturing Cost, Cost of Goods Manufactured, Cost of Goods Sold. Bid Price/Selling Price Computation. Finding Missing Values of Inventory Balances, Cost of Goods Sofd, Factory Cost, etc.

4 **Costing Accounting Systems:** Definition of Cost Accounting Information System. Chart of Accounts, Journal Voucher Control System. The Manufacturing Cost Accounting Cycle and Entries. Factory Ledger and General Ledger.

5. **Job Order Costing;** Meaning and Importance of Job Costing. Actual & Standard Cost System used in Job Costing. Difference b/w Job order and Process Costing. Preparation of Job Cost Sheet & Job Cost Cycle Entries. Job Cost Accumulation Procedures,

6 **Process Costing:** Definition, Importance, Characteristics, & Scope of Process Costing. Costing by Departments—First & Subsequent Departments. Product Flow. Process Cost Procedure for Materials, Labor, & Factory Overhead. Preparation of Cost of Production Report including Treatment for Addition of Materials and Lost Unit Calculation (Normal & Abnormal Loss).

7 **Factory Overhead: Planned, Applied, and Actual with Variance Analysis:** Factory Overhead -Predetermined, Actual, and Applied. Over or Under Applied Overhead. Variance Analysis. Incorrect Overhead Rates. Changing Overhead Rates.

8 **Factory Overhead (Departmentalization):** The Concept of Departmentalization. Producing and Service Departments. Direct & Indirect Departmental Expenses. Finding & Using Departmental Overhead Rates. Actual FOH Departmentalized. Over & Under Applied FOH. Spending & Idle Capacity Variance Analysis.

9 **Controlling *&* Costing Materials:** Procedure for Material, Procurement and Use. Material Costing Methods. Cost assigning to Inventory at end of the period. Material Cost Controlling Technique. Calculation of Economic Order Quantity by Tabulation and Equation Method

10 **Labour Cost Accounting & Incentive Wage Plans:** Basis for Labor Cost Control. Productivity and Efficiency Measurement of Labor. Procedure for Labour Costing. Incentive Wage Plans— Time Standards, and Learning Curve Theory.

11 **Text Book: Cost Accounting: Planning *&* Control, by Matz Usry (7th Edition)**

B.Com **Part—II**

Paper—III **Business Law** **Total Marks: 100**

1. **Introduction:** Sources of Business Law.
2. **Law of Contract:** Definitions, and Formation of contract. Essentials of a valid Contract. Performance of Contract. Discharge of contract. Breach of contract. Law Governing Indemnity, Guarantee, Bailment and Agency.
3. **Sale of Goods Act:** Definition and Types of Contract of Sales. Conditions and Warranties. Effects of the contract of sales. Performance of the contract. Rights of Unpaid seller.
4. **Partnership Act:** Definition and Essential Elements of Partnership. Registration of Firms. Classes of Partners. Rights and duties of Partners. Dissolution of Partnership.
5. **Negotiable Instruments Act:** Definition, Characteristics and Types of Negotiable Instruments. Negotiation. Crossing and its Types. Endorsement. Liabilities of Parties in the Negotiable Instruments. Discharge from Liabilities.
6. **Carriage of Goods:** Definition, Essentials, Rights, and Duties of a Common Carrier. Restricted Liabilities of Railway Carriage as Common Carriage and By Sea.
7. **Industrial Law:** Laws relating to Factories. Workmen Compensation & Industrial Relations Ordinance. Social Security and Payment of Wages.

Books Recommended:

1. Mercantile Law in Pakistan, by A.G. Chaudhry (Latest Edition) Pakistan Publishing House Karachi.
2. Mercantile Law of Pakistan, by Khawaja Amjad Saeed. (Latest Edition)
3. Business Law, by Khalid Mehmood Cheema. Mobeen & Company Lahore. (Latest Edition)

B.Com Part—II

Paper—IV Auditing Total Marks: 100

1. **Introduction:** Definition, Scope and Objectives of Auditing.
2. **Internal Control:** Definition of Internal Control, Internal Check, & Internal Audit. Working of Internal Control in Various Departments of an Organization.
3. **External Audit:** Definition and Types of External Audit—Continuous, Final and Interim Audit. Definition & Importance of Audit Programme, Audit working Paper, and Audit Note Book.
4. **Vouching:** Definition of Vouching. Various Audit/Vouching Techniques and their Applications.
5. **Verification:** Definition of Verification. Verification of Assets and Liabilities.
6. **Auditor:** Definition, Appointment, Right, Duties and Liabilities of pan Auditor.
7. **Auditor Report:** Definition. Meaning & Features of Statutory Report, Prospectus, Annual Audit Reports (Qualified & Unqualified Audit Reports)
8. **Audit of Divisible Profit:** Definition & Auditor's Duties in auditing the Divisible Profit of a Joint Stock Company.
9. **Specialized Audit:** Meaning & Specialized Audit Procedure, for Textile Mills, Sugar Mills, Banks, Cement Factories, Universities and Colleges.
10. **Audit of computerized Accounting Record:** Introduction to the Computer Based Audit Techniques.
11. **Investigation:** Meaning & Difference with Audit. Meaning and Procedure for Detection of Frauds in Cash and Goods.

Books Recommended:

1. Auditing by Muhammad Irshad. Naveed Publications Lahore. (Latest Edition)
2. Auditing, by Khawaja Amjad Saeed. (Latest Edition)
3. Auditing, by Zafar M.Zaidy. (Latest Edition)

B.Com **Part—II**

Paper—V **Economics of Pakistan** **Total Marks: 100**

1. **Introduction:** Economics Resources of Pakistan—Mineral, Power, Water, and Human. Influence of Economics Resources on Economic *&* Social Development of Pakistan.
2. **Resource Development in Pakistan:** Problems & Possible Solution
3. **Composition of Pakistan Economy:** Definition of Economy. Salient Features of Pakistan Economy (Past, Present and Future).
4. **Agriculture Sector of Pakistan:** Main Products. Food Problems. Price of Agricultural Products and Government Policies. Collective & Cooperative Farming. Problems of & Remedies to Agricultural Finance. Marketing of Agricultural Products and Problems thereto.
5. **Industrial Sector of Pakistan:** Present Position and prospect. Industrial Finance and financial Institutions. Localization of Industries. Private and Public Investment. Large Scale, Small Scale, and Cottage Industries. SMEDA and its Role. Marketing of Industrial Products.
6. **Trade & Globalization:** Main Exports & Imports. Trends in foreign Trade and Balance of Payments. Regionalism & World Trade Organization (WTO).
7. **Transport & Communication Sector of Pakistan:** Development of Means of transport and communication and their role in economic development.
8. **Fiscal and Monetary Policy of Pakistan:** Meaning, Role and Features of Current Fiscal & Monetary Policies of Pakistan.
9. **Poverty Alleviation, Unemployment and Debt Issues of Present Pakistan:** Causes & Possible Remedies.
10. **Economic Planning & Budgeting:** Definition, Role and Features.

Books Recommended:

1. Economics Problems of Pakistan, by M.Saeed Nasir. Ilmi Book House Lahore (Latest Edition)
2. The Management of Pakistan Economy, by Waqar Ahmad & Rashid Amjad. (Latest Edition)
3. The Five-Year Plan (Latest), by Government of Pakistan.

B.Com Part—II
Paper—VI **Accounting Information System** **Theory: 70**
Practical: 30
Total: 100

Section—A (Theory Portion: 70 Marks)

1. **A Model for Processing Accounting Information:** (i) Introduction: Definition of an Organization. Event Affecting an Organization. Human & Computer Resources of an Organization, (ii) Accounting Methods & Objectives: Scope of the System & Nature of the Events. The Accounting Process. Technology & Accounting Information System (AIS). Reasons for Studying Accounting Information System.
2. **Responsibility Accounting System:** (i) Introduction: Meaning of Information Flows, (ii) Top-Down Information Flow: Organization Structure. Policy Statements. Performance Goals, (iii) Bottom-Up Information Flow: Responsibility Centers. Cost, Profit & Investment Centers. Performance Reports, (iv) Data Accumulation: Responsibility Codes. Account Codes. Budget Codes. Financial Reporting & Responsibility Accounting.
3. **System Concepts & Accounting:** (i) Introduction to System Concept & Theory: Definition, Characteristics & Types of Systems, (ii) Accounting Information System: Accounting as a System (iii) Accounting as a Sub-System: Decision Making Activities. Decision Problems & the Activity Level. A Spectrum of Management Information Needs, (iii) The System Approach: Define the Objective. Explore Alternative Solutions. Take Broad Viewpoint. Use a Project Team.
4. **System Tools:** (i) Introduction, (ii) Flowcharting: Standard Flowchart Symbols. System Flowchart. Program Flowchart. Document flowchart, (iii) Other System Documentation: Dataflow Diagrams. System Charts. Structure Charts. Decision Tables, (iv) Interviews.
5. **Accounting Transaction Charts:** (i) Introduction, (ii) Economic Events: The Cycle of Business Activities, (iii) Documents, Records, and Reports: Transaction Cycles. Cycles & Applications. Advantages of using Transaction cycles.
6. **Revenue Cycle Applications:** (i) Introduction, (ii) Documents, Records, and Reports: Revenue Cycle, Transactions and Documents. Revenue Cycle Report. Revenue Cycle Accountability Records. Revenue Cycle Accounting Records, (iii) Transaction Processing—Manual & Computerized.
7. **Expenditure Cycle Applications:** (i) Introduction (ii) Documents, Records, and Reports: Expenditure Cycle, Transactions and Documents. Expenditure Cycle Reports. Expenditure Cycle Accountability Records. Expenditure Cycle Accounting Records, (iii) Transaction Processing—Manual & Computerized.
8. **Conversion Cycle Applications:** (i) Introduction, (ii) Inventory Systems: Transaction and Documents. Reports. Records. Transaction Processing, (iii) Cost Accounting systems: Transaction and Documents. Reports. Records. Transaction Processing, (iv) Payroll Systems: Payroll Transaction and Documents. Payroll Reports. Payroll System Records. Payroll Transaction Processing, (v) Non-Accounting Policies: Production Scheduling System. MRP System. JIT System, (vi) Control Flowcharts for the Conversion Cycle. **9. Financial Cycle Applications:** (i) Introduction, (ii) Debt & Equity Capital: Capital Transactions. Accounting Records for Debt & Equity Capital. Controls for Debt & Equity Transactions, (iii) Property system: Transaction and Documents. Reports. Records. Transaction Processing, (iv) The Journal entry & Financial Accounting

Reporting System: Journal Entry & Financial Reporting Transactions. Journal Entry & Financial Reports. Journal Entry & Financial Reporting Records. Journal Entry & Financial Report Processing. Recording Depreciation. Applications Controls. Responsibility Accounting.

Text Book; Accounting Information System, by J.I. Brookholdt & David H.Li. Irwin

Section---B (Practical Portion : 30 Marks)

1. Use of Computer-based Accounting Information System: **(Peachtree Complete Accounting—Version 7.0/Latest Version).**
2. Learning the following Menus in Computer Lab:

(i) File Menu
(ii) Edit Menu
(iii) Maintain Menu
(iv) Task Menu
(v) Analysis Menu
(vi) Options Menu
(vii) Reports Menu
(viii) Windows Menu
(ix) Help Menu

B.Com **Part—II**

Paper—VII **Statistical Methods** **Total Marks: 100**

1 **Introduction:** Definition, Origin, Scope, Importance and Application of Statistics in Business and Commerce. Limitations of Statistics. Observations & Variables. Statistics & Parameters. Population & Sample. Collection of Data: Primary & Secondary.

2 **Presentation of Data:** Introduction, Classification, Tabulation, Frequency Distribution, Graphs and Diagrams.

3 **Measures of Central Values:** Introduction, Qualities of Good Averages, Types of Averages and their Computation (Mean, Median, Mode, Geometric Mean, & Harmonic Mean). Empirical Relationship b/w Mean, Median and Mode. Merits & Demerits of Different Averages. ,

4 **Measures of Dispersion and Skewness:** Introduction, Absolute & Relative dispersion. Types of Absolute & Relative Dispersions and their Computation (Range, Quartile Deviation, Mean Deviation, Standard Deviation, Variance and their Relative Coefficients). Skewness and its Coefficient.

5 **Index Numbers:** Definition, Importance and Scope of Index Numbers. Steps in Construction of Index Numbers. Un-weighted Simple Index Numbers and their Computations by Fixed Base and Chain Base Methods. Un-Weighted Composite Index Numbers and their Computations by Price Relatives & Link Relatives Methods. Weighted Index numbers and their Computations. Consumer Price Index Number and its Calculation.

6 **Simple Correlation and Regression:** Introduction, and Properties of Correlation. Calculation of Correlation Coefficient by Direct and Shortcut Methods for Individual Value Series Only. Lines of Regression of Y on X and X on y. Method of Least Squares and Curve-Fitting.

7 **Basic Probability Theory:** Definition, Laws of Probability. Conditional Probability, Mutually and Not-Mutually Exclusive Events. Independent and Dependent Events. Application in Business.

8 **Probability distributions:** Binomial and Poisson distributions (All Essential Aspects of the two Distributions). Mean & Variance of Binomial & Poisson distributions. Fitting of Binomial & Poisson distributions to the given set of frequency distribution.

Text Book:

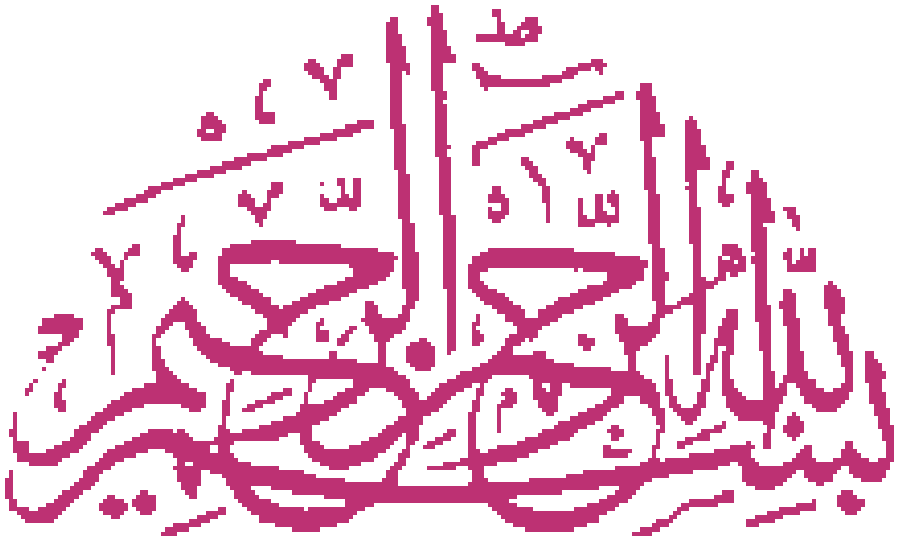
1 Introduction to Statistical Theory-Part I & II, by Prof: Sher Muhammad Chaudhry.

2 Elements of Statistics, by Iqbal Bhatti.

B.Com **Part—II**

Paper—VIII **Pakistan Studies** **Total Marks: 40**

As Applicable in BA/B.Sc. Examinations



HISTORY PART I & II COURSE OUTLINE

B.A History Course Structure

3rd-Year

Paper-A	**Marks:75**
Option-I	
From (711 to 1526)	
Option-II	
From(1526 to 1965)	

4th-Year

Paper-B	**Marks:75**
Option-I	
Islamic History	
Option-II	
British History(1688 to present)	

Detail Course Outline:

Paper-A (Option-I) **Credit: 75**

Marks

3rd year

(From 711 to 1526)

4. A detailed survey of the rise and fall of the Muslim rule in the sub-continent since 711 to 1707.
5. Conditions of India on the eye of the Arab invasion of Sindh (711 A.D).
6. Arab conquest of Sindh, administration and character of Muhammad Bin-e- Qasim.
7. Invasion of Mehmood of Ghaznavi, Motives and effects of his invasion of India (997-1030 A.D).
8. Character and estimate of Mehmmod of Ghaznavi.
9. Establishment of the Muslim rule in India, Muhammad Ghon's conquest and causes of his success.
10. The rise and fall of the slave dynasty, particularly the rule played by Qutb-Ud-Din Abbak (1206-10), Altamash(1211-1236) and Ghayas-Ud-Din Balban (1266-1286) in the foundation of the Muslim rule in India.
11. Administration of the Slave Dynasty.
12. The Mongol threat and the strategy of the Slave Dynasty.
13. Khilgi Revolution and the accession of Jalal-Ud-Din Khilghi (1290-96).
14. Allauddin Khilgi (1296-1316), his administration, militarism and reforms.
15. Decline of Khilgi dynasty, and the rise of the Tughlaq.
16. Accession of the Ghisyas-Ud-Din Tughlaq (1320-1325).
17. Muhammad Bin Tughlaq (1325-1351), his domestic and foreign policy.
18. Reforms and character of Muhammad Bin Tughlaq.
19. The reign of Feruz Tughlaq (1351-1388), his internal administration and external policy.

20. Character and achievements of Feruz Tughlaq.
21. Timur's invasion of India (1398) and the effects of his invasion.
22. Causes of the downfall of the Tughlaq dynasty.
23. The rise and fall of the Syyids (1414-1451) and Lodhis (1451-1526).
24. Disintegration of the Delhi Sultanate.
25. Structure of the Society and administrative system of the Delhi Sultanate.
26. Architecture and literature during the Delhi Sultanate period.

Recommended Books:

2. Ikram S.M Muslim," Civilization in India".
3. Majumdar R.C, "Arab invasion of India".
4. Poole Lane, "Medieval India".
5. Qurashi I.H,"The Administration of the Sultanate of Delhi".
6. Sharma S.R, "The Crescent in India".

Paper-A (Option-II) Credit: 75 Marks

3rd year

(From 1526 to 1965)

1. Condition of India on the eve of Babur's invasion of India.
2. Character and achievements of Babur's (1526-30).
3. Class between the Afghan and the Mughals, Sher Shah Vs Hamayun.
4. Character and reforms of Sher Shah.
5. Akbar (1556-1605), his secularization of India and religion policy.
6. Administrative reforms and character of Akbar.
7. The reign of Jahangir (1605-1617), and the influence of Nur Jahan.

8. The role of Mujaddid Alf Sani, as a saviour of Islam in India.
9. The golden age of Shah Jahan (1627-1658), his national and foreign policies.
10. War of Succession (1627-1658).
11. The rise of Aurangzeb Alamgir (1658-1707).
12. Islamisation of India by Alamgir and his Deccan and frontier Policies, and the rise and fall of the Marhattas.
13. Causes of the disintegration of the Mughal Empire.
14. Culture and society during the Mughal period.
15. War of independence and its after-math.
16. Clive and Duplex in Deccan and Bengal, Causes of English Success.
17. Clive, Warren Hastings and Cornwallis-Reforms and relation with native states.
18. Lord Hastings William Bentink, Harding and Dathousic their reforms and relation with native states.
19. The War of Independence and its after-math.
20. The role of Sir Sayyid Ahmad Khan and Alighar movement.
21. The growth of ism-National congress and Alighar movement.
22. The constitutional importance of Government of India Act.1909, 1919, 1935.
23. Lahore Resolution, Cripps Mission, Cabinet Mission, Indian Independence Act, 1947.
24. Problems of Pakistan, Radcliff and Achievements of the new Regime, Indo-Pakistan War of September, 1965.

Recommended Books:

1. History of Pakistan published by University of Karachi.
2.

Paper-B (Option-I) **Credit: 75**

Marks

4th year

(Islamic History)

A very well detailed study of the Political History of the period with particular reference to the development of the following political and Religious Institutions of the Muslim Social Religious and Political condition of Arabia before Islam.

The Holy Prophet-Life in Makkah, Chief Ghazwa Foundation of Islamic Commonwealth in Madina, Prophet's relations with Jews, the Roman and Christian farewell Sermon, The Pious Caliphate, Election various nomination and hereditary principles, the terms "Khalifa" and "Amirul Muminin", Functions of the Khalifa, the shura, Administrative Civil and Judicial Institutions under the pious Khalifa, Real significance of Jihad, Revolution of the Military Department of Islamic State Causes of the Early Muslims rapid victories in Wares.

Foundation of Islamic State:-

Government Machinery Ecclesiastical Department (Tabligh Ta'him and Ihtisab) Law and order.

Department of Interior, Public Works Department.

The Provincial Administration: - Provincial Officers, Sources of Revenue, the Police, prisons and Treasure.

The Umayyad:- Amir Maawiya and the changed characters of the Caliphate Nomination versus Election, Claims of the Ahl-al-Baith and the Political Doctrines of the Khrijites, Arab Ascendancy and the Arabization of the Islamic Empire, Adoption of certain Anti-Islamic Practices, Omer-Bin-Abdul-Aziz and his reforms, Development of the Central Administration, The Court, Army, Navy, Finance and Justice.

Currency under Orthodox Caliphs, under Maawiya, under Abdullah-bin-az-Zubayi and under Abdul Malik Bin Merwan.

Provencal Administration under the Umayyad, Central Features:-The Provinces and Districts of the Empire, the Provincial Diwans, the Provincial Officials, the Amir or Wali, the Aml-Shibli Kharaj Katib, the Qazi or Kakim-ush-Shara, Distinctive feature of certain major provinces, Al-Iraq, Egypt, Syria and Spain.

Revenue and Military Administration under the Umayyad:- Sources of Revenue Public Works Department under the Umayyad, Development of the Military department under the Umayyad.

Political and Religious Movements of the period, the Sunnis, the Shias, the Khawarijn, the Mawali, the Murik, the Mu'tazalias and the early Sufis, Culture in the Umayyad period.

Recommended Books:

1. "Islamic State and Pakistan" by Muzaffar ud Din, MA, PhD, Principle, I.I College, Chittagong.
2. "Arab Administration" by S.A.O Hussaini Govt.Muslim College Madras.
3. "The Conduct of the Muslim State" by Dr.M.Hamidullah.
4. "The Caliphate, its Rise and Fall" by Sir William Muir.
5. "The Caliphate" by Arnold.
6. "History of the Saracens" by Syed AMr Ali.

Paper-B (Option-II) Credit: 75 Marks

4th year

(British History)

From 1688 TO Present Day

POLITICAL SCIENCES

PART I & II COURSE OUTLINE

Political Science Course Structure

Part- I	Marks:75
Unit-1	Political Science
Unit-2	Sub. Division
Unit-3	Approaches
Unit-4	Concept of State
Unit-5	Structure of Government
Unit-6	Political Processes
Unit-7	Individual and State
Unit-8	Contemporary Ideologies
Unit-9	United Nations

Part- II	Marks:75
Unit-1	Constitution of U.S.A
Unit-2	Constitution of U.K
Unit-3	Constitution of China
Unit-4	Constitution of Pakistan
Unit-5	Political thoughts of Plato & Aristotle
Unit-6	Political Thoughts of Machiavelli
Unit-7	Political thoughts of Rousseau Mill and Marx
Unit-8	Political thoughts of Ibne-Khldun and Iqbal.

Detail Course Outline:

Political Science Part-I **Credit: 75**

Marks

PAPER-I

Unit-1: Political Science:

Nature, Scope and Purpose of Study with particular reference to Islam.

Unit-2: Sub. Division:

Namely Public Administration, International Relations, Comparative Politics, Local Government.

Unit-3: Approaches:

Such as Disciplinary and Intra-disciplinary and behavioral.

Unit-4: Concept of state:

a. **Western:** Nature, Origin and Sovereignty.
b. **Islamic:** Nature, Purpose and Sovereignty.
   Organization of modern state and it forms, Unitary, Federal, Parliamentary, Presidential, Democratic, Authoritative and Totalitarian.

Unit-5: Structure of government:

a. **Western:** Legislative, Executive and Judiciary.
b. **Islamic:** Legislative, Executive and Judiciary.

Unit-6: Political processes:

Electorate, Political Parties, interests and pressure groups, public opinion.

Unit-7: Individual and state:

a. **Western:** Law, Rights and Liberty.
b. **Islamic:** Law, Rights and Liberty.

Unit-8: Contemporary Ideologies:

Islamic political ideology, Globalization, Communism, Capitalism.

Unit-9: United Nations:

Purpose, organs and the functioning of the United Nations.

Recommended Books:

7. Mazhar- Ul- Haq,"Principles of political science (theory and practice)".
8. Muhammad Sarver, "Introduction to Political Science".
9. Rodee & Anderson, "Introduction to Political Science", 1967(New York).
10. Abu Aala Maududi," Islamic Riasat"(Lahore 1977).
11. Muhammad Asad, "Principle of state and Government in Islam".

Political Science Part-II Credit: 75 Marks

PAPER-II

Part-A

Constitutions:

Unit-1: Constitution of U.S.A.

Unit-2: Constitution of U.K.

Unit-3: Constitution of China.

Unit-4: 1973 Constitution of Islamic Republic of Pakistan, with all amendments.

Part-B

Political Thought:

Unit-5: Greek Theorists:

Political thoughts of Plato & Aristotle:

Plato: Justice, Concept of Education, Communism and Ideal State, **Aristotle:** Nature and Classification of States, Views on Slavery and Revolution.

Unit-6: Middle Age Theorists:

Political thoughts of Machiavelli:

Moral Indifference, Views on Diplomacy and Power Politics.

Unit-7: Modern Age Theorists:

Political thoughts of Rousseau, Mill & Marx:

Rousseau: General, will and Popular Sovereignty.

Mill: Liberty and Representative Government.

Marx: Interpretation of History, Class war and surplus value.

Unit-8: Political thoughts of Ibne-Khaldun & Iqbal:

Islamic Theorists:

Views on Sovereignty.

Individual and Millat.

Recommended Books:

1. Mazhar- Ul- Haq,"Modern constitution".
2. Muhammad Sarver, "Comparative governments".
3. Judd Harman, "Political thought -From Plato to present".
4. Munro,"Governments of Europe".
5. Munro, "Government of U.S.A".
6. Aziz.K.K."Comparative constitution", M.Brothers Lahore, Pakistan, 1962.
7. Wayper,"Teach yourself political thoughts".

8. D.R.Bhendnri,"History of European political philosophy", Banglor, India, 1953.

ECONOMICS

PART I & II COURSE OUTLINE

B.A/B.Sc Economics Course Structure

3rd-Year

Paper-A (Quantitative Methods For Economics And Economic Theory) **Marks:75**
Part-I(Micro-Economics) **Marks:45**
1. Introduction
2. Theory of Consumer Behavior
3. Elementary Theory of Demand Supply
4. Theory of Production: e. Production Function. f. Cost Function. g. Revenue Function.
5. Market Structure.
6. Theory of Income Distribution and Pricing of the Factors Production.
Part-II (Basic Mathematics & Statistics) **Marks:30**
1. Significance.
2. Variables, Sets & Functions
3. Equations.
4. Derivation & Application.
5. Central Tendency & Dispersion.
6. Index Numbers.

4th-Year

Paper-B (Macro-Economics & Economic Development Of Pakistan) **Marks:75**
Part-I(Macro-Economics) **Marks:45**
1. National Income & its Measurements.
2. Determinants of National Income.
3. Determinants of National Income & Employment.
4. National Income Fluctuation.
5. Monetary Phenomenon & National Income.
6. Fiscal Policy and National Income.
7. Foreign Trade and National Income.
Part-II (Economic Development of Pakistan) **Marks:30**
1. Concept of Economic Development and its Measurements
2. Factors of Economic Development.
3. Economic Planning in theory and Practices.
4. Role of Strategic Sectors.
5. Banking as a sector in Pakistan.
6. External Trade as an engine of Growth.
7. Fiscal System in Pakistan.

Detail Course Outline:

Paper-A Credit: 75

Marks

(Quantitative Measurement for Economics and Economic Theory)

Part-I Marks: 45

(Micro-Economics)

27. **Introduction:**

Nature, Scope and importance of Economics: The concepts of Scarcity,

Choice and Production Possibility Frontier. Economic analysis at Micro &

Macro level in an Economy, Laws of Economics.

28. **Theory of Consumer Behavior:**

Utility & Indifference curve approaches to the consumer behavior, Consumer

Equilibrium through both approaches, Marginal rate of substitution, Price

Effect, Income and substitution effects, Normal, Inferior and Giffen Goods,

Graphical derivation of demand curve using Slutsky and Hicks approaches.

29. **Elementary Theory of Demand and Supply:**

Demand-Supply, Laws of Demand and Supply, Price determination in the Market, Elasticity of Demand and Supply, Forms of Elasticity and its measurement.

30. **Theory of Production:**

    a. **Production Function:**

    Isoquants, Marginal rate of technical substitution iso-cost curves, Laws of Variable Proportion, Optimal Level of Production.

b. Cost Function:

Total Cost, Average Cost and Marginal Cost Curves, Short & Long Run Costs, Derivation of Short Period and Long period Costs Curves.

c. Revenue Function:

Total Revenue, Average Revenue and Marginal Revenue Curves, In perfect and Imperfect Competition, Relationship with elasticity of demand.

31. Market Structure:

Types of Markets and Equilibrium of a Firm (Short-Run & Long-Run), under

Perfect Competition, Monopoly, Monopolistic Competition and Oligopoly,

Problem of price discrimination, Collusive and Non-collusive models of Oligopoly, (Cornot, Kinked demand curve, Price Leadership and Cartel Models).

32. Theory of Income Distribution and Pricing of the Factors of Production:

Marginal Productivity Theory, The demand curve for one factor and many

Factor, and Factor pricing under Perfect Competition.

Recommended Books:

12. Richard G. Lipsey.(1983) “Introduction to positive Economics” The English Language Book Society, Latest edition, 1983.
13. Paul A. Samuelson & Nordhaus, “Economics”, Mc, Graw Hill, Inc 1995.
14. R.H.Leftwich,”The price system and Resource Allocation”, The Dryden Press, Hinsdale Illinois, 1976.

15. Abdul Haleem Khawaja, “Economic Theory”, Khawaja and Khawaja Publication House, Islamabad.

Additional Readings:

1. Wonnacott & Wonnactoc Economics.
2. C.E. Ferguson & J.P. Gould,” Microeconomics Theory”.

Part-II Marks: 30

(Basic Methods and Statistics)

1. **Significance:**

   Importance of basic mathematical tools in Economics, Interrelationship between Economics , Statistics and Mathematics, Use of Statistical and Mathematical methods in economic theory.

2. **Variables, Sets and Functions:**

   Definition of Variables, Types of Variables (continuous, discontinuous, depended and independent variables), Meaning of set and its notations, Types of sets and their inter-relationship, Types of functions, Function and Relation.

3. **Equations:**

   Equations and Identities, Simple and simultaneous quations, Importance of unknowns, constants, parameters, coefficients and powers as symbols of equations, Linear and non-linear equations and their solutions.

4. **Derivatives and Application:**

   Concept of limits and continuity of functions, Methods of finding the limit of a function, Theorems of limits, Meaning of Derivatives, The rules of derivatives its application in Economics, Concepts of maxima, minima and point of inflection, Differential and partial Derivatives and Constrained Optimization.

5. **Central Tendency & Dispersion:**

   Calculations of average mean, mode, median, quartiles, deciles, percentiles, range, mean deviation, standard deviation and Variance.

6. **Index Numbers:**

   Need for index numbers, method of constructing index numbers, simple index numbers, weighted index numbers, Laspeare index paasche index, Fisher index and marshal-Edge worth index.

Recommended Books:

2. A.C. Chiang, “Fundamental Methods of Mathematical Economics”, McGraw Hill Book Company 1985.
3. K. Holden & A.W. Pearson, “Introductory Mathematics for Economics”, Macmillan Press, London, 1983.
4. S.M. Ahsan Hussain, “Mathematics for the students of Economics”, Kifayat Academy, 2000.
5. S.M. Ahsan Hussain,”Tools of Statistical Analysis”, Kifayat Academy, 2000.

Paper-B Credit: 75 Marks

(Macroeconomics and Economic Development of Pakistan)

Part-I Marks: 45

(Macroeconomics)

1. **National Income & its Measurement:**
   Introduction & Definition of Macroeconomics, variables and their mutual relationship, Concepts of national income GDP, GNP, NNP, Disposable income, Three methods of computing national income, Real Vs Nominal Income, GNP Deflator.
2. **Determinants of National Income:**
   Classical and Keynesian, Consumption function and consumption theories, Saving function and investment function, Marginal efficiency of capital and rate interest.
3. **Determination of National Income and Employment:**

Equilibrium level of national income, saving and investment, identity, inflationary and deflationary gaps, Concept of IS and LM curves and their Determinants, Classical and Keynesian theory of employment.

4. **National Income Fluctuation:**

   Concepts of Multiplier and Accelerator principle and their interactive role in business fluctuations, Features and remedies for business cycles.

5. **Monetary Phenomenon & National Income:**

   Functions of money and Commerce Bank and credit creation, Central Banks Functions, Monetary policy its objective and tools, Impact of Monetary policy upon C.I. & G. Inflation and staglation, LM curve, Inflation, Demand-pull and Cost Push inflation.

6. **Fiscal Policy and National Income:**

   Fiscal policy, meaning and its objectives and tools, Public expenditure, Taxes, National dept and Income, determination, Deficit budget and its role in inflation.

7. **Foreign Trade and National Income:**

   Role of Foreign Trade in effecting national income, Classical and modern theories of comparative advantages, Balance of Trade, Balance of Payments, Terms of Trade and adversity, Foreign exchange determination, Causes and remedies of deficit in Balance of Payment, Role of I.M.F & World Bank.

Recommended Books:

1. Edward Shapiro, “Macro Economics Analysis”, Harcourt Brace Jovanovich, Inc, New York, 1982.
2. R. Dom bush & S. Fisher, “Macroeconomics”, Sixth Edition, Mc.Graw Hill Inc, 1994.
3. Richard T.Froyen,”Macroeconomics Theories and Polices”, Fifth Edition, Macmillan Publishing Company. 1990.

4. Mankiv, N.Gregory,"Macroeconomics", 2nd Edition worth Publisher.
5. Abel & Bernanke," Macroeconomics", Latest Edition.

Part-II

Marks:30

(Economic Development of Pakistan)

1. **Concept of Economic development and its Measurement:**
   Characteristics of a developed country versus those of a developing country, The concept of economic development and methods to measure it.
2. **Factors of Economic Development:**
   Role of natural, human and capital resources in promoting economic development along with role of infrastructure with special reference to economy of Pakistan, Role of food, health, educational and training in generating accelerated economic development.
3. **Economic Planning in theory and Practices:**
   Imperfection of Market, Need for economic planning and its objectives, Types of economic planning, Key decisions in formulation a five year plan, Historical perspectives of various Five Years Plan and Review of the latest five years plan in detail.
4. **Role of Strategic Sectors:**
   Importance and problems of Agriculture, Industry, Human capital, Transport and Communications in the economy of Pakistan, Solution and Government policies in these spheres.
5. **Banking as a sector in Pakistan:**
   Role of commercial and central banks in mobilizing and utilizing capital resources in Pakistan, Growth of banking as an industry, Nationalization and Privatization of banks in the country, Role of money and monetary policy in expending economic growth in Pakistan, Inflation, causes and remedies, Experience of interest free banking in the country.
6. **External Trade as an engine of Growth:**

Role of foreign trade and foreign aid in economic growth of Pakistan, Export-promotion measures and import substitution policy of the government and their results, Deteriorating terms of trade, Role of foreign remittances and foreign aid in Economic Development of Pakistan.

7. **Fiscal System in Pakistan:**

   Sources of public revenues for the federal and provincial government and head of expenditure, Budget formation and fiscal policy in various years.

Recommended Books:

1. Kh. Amjad Saeed (2000), “The Economy of Pakistan”, SA Salman Publications.
2. Waqar Ahmad & Rashid Amjad,”The Management of Pakistan’s Economy”, Oxford University Press, Karachi.
3. “Different Economic Surveys”, Published by Government of Pakistan (Latest).

SOCIOLOGY

PART I & II COURSE OUTLINE

Sociology
Part I & II
Course Structure

Part	Paper	Marks
I	Introduction to Sociology	75
II	Sociology Problems & Research	75
Total Marks		**150**

REVISE BA COURSE (SOCIOLOGY)

PAPER-I

INTRODUCTION TO SOCIOLOGY

1. Fundamental of Sociology

1.1 Nature, Scope, and subject matter of Sociology
1.2 Brief historical development of Sociology
1.3 Society and community
1.4 Relationship with other social sciences like Economic, Political Science , History, Psychology, and Anthropology.
1.5 Social interaction processes
Cooperation, Competition, Conflict, Accommodation, Acculturation, and Assimilation.

2. Social Groups

2.1 Definition and Functions
2.2 Types of Social Groups
In and out group, Primary and Secondary groups, Reference groups. Formal and informal Groups, arid Pressure groups

3. Social Institutions

3.1 Definition, Structure and Function of the following Institutions:
Family, Religion, Education, Economics, Political Inter-relationship among various social institutions.

4. Cultural and Related Concepts

4.1 Definition and aspects of culture
Material and non-material culture
Ideal and real culture
4.2 Elements of culture
Beliefs, values, norms(folkways, mores, laws)
4.3 Organization of culture
Traits, complexes, and patterns
4.4 other related concepts
Cultural relativism, Sub-Culture and ethnocentrism

5. Socialization and Personality

5.1 Role and Status

5.2 Socialization
5.3 Culture and Personality

6. Deviance and Social Control

6.1 Definition and types of deviancwe
6.2 Formal and informal methods of social control

7. Social Stratification

7.1 Determinants of Social Stratification
Caste, Class, Ethnicity, Power, Prestige and Authority
7.2 Social Mobility
Definition and types
7.3 Dynamics of social mobility

8. Social and Cultural Change

8.1 Definition of social change
8.2 Dynamics of social change
Education, Innovation, Industrialization, Urbanization and Diffusion
8.3 Resistance to change

Recommended Text Books

1. Horton Paul B. and Hunt, Chester L (1990),Sociology Singapore: McGraw Hill Book Company.
2. Sociology 1 by Allama Iqbal Open University, Islamabad
3. Sociology 2 by Allama Iqbal Open University, Islamabad
4. Taga, Abdul Hameed (2000) An Introduction. New York: Harper and Rows

REFERENCE BOOKS

1. Betrnad, Alvin L.(1969). Basic Sociology-An Introduction to Theory and Methods, New York; Appleton Century Crofts. Broom, Leonard and Selznic. Phipps, Sociology A text with adopted leadings, New York; Haper and Row Publishers.
3. Curran, Jr.(1977).Introductory sociology: A basis Self Instructional Guide
4. Inkeles, Alex (ed)(latest ed).what is Sociology? An Introduction to

the discipline and profession, foundation of sociology Service Englewood Cliffs.N.J preentice hall Inc. Davis.Kingsley (latest ed).Human society .Princeton University Press.

5. Hafeez, Sabeeha (1990), The Changing Pakistan Society. Karachi: Royal Book company, Zaibunisa Street, Sadar.
6. Morton Paul B. and Hunt, Chester I.. (1990) Sociology singapore.Macgraw Hill Book Company.
7. Koeing, Samuel (1957). Sociology-An Introduction to the Science of Society, New York: Barnes and Boble Books, Harper and Row Publisher.
8. Lee, Alfred Mcbuing and lee, ElizabethBraint (196 l)Marriage and the family, New ork:Barnnnnes and Boble,Inc.
9. Merrii, F.E., (lates ed,), Sociology and Culture. N.J. Englewood Cliffs.
10. Perry, John A., and perry, Ernak (1980), The Social Web-An Introduction to Sociology New York: Macgraw Hill Book c., Inc.
11. Philips, Bernard (1990). Sociology-Form Concepts to Practice. New York: Macgraw Hill Book Company Inc.
12. Rao, C.Nshaukar (1990), Sociology, New Delhil: S.C Chand and Company Ltd.
13. Thio, Aex (lated ed.) Sociology-An Introduction New York: Harper and Ros.

PAPER-II SOCIAL PROBLEMS AND RESERCH

1. **Contemporary Major Social Problems in Pakistan**
   - 1.1 Population Growth.
   - 1.2 Crime and Juvenile Delinquency
   - 1.3 Urbanization
   - 1.4 Illiteracy
   - 1.5 Gender Disparity
   - 1.6 Child Labour
   - 1.7 Seciarianism

2. **Introduction**
   - 2.1 what is social research
   - 2.2 functions of research

3. Types of social research
   - 3.1 Descriptive
   - 3.2 Explanatory

4. Steps in Social Research

4.1 identification of research problem
4.2 objective of research
4.3 review of relevant literature
4.4 tools of data collection
4.5 sampling design
4.5.1 probability sampling
Simple random and stratified random
4.5.2 Non-probability sampling
Accidental and purposive
4.6 Data Collection
4.7 Data Analysis
4.7.1 Measures of central tendency
Percentage and averages, mean, median, and mode
4.8 data Interpretation
4.9 Report writing
4.10 References and Bibliography

RECOMMENDED TEXT BOOKS

1. Baily, K.D.(2000).Methods of Social Research, New York: The Free Press.
2. Baker, Therese L.(1990),Doing Social Research, New York: The Free press
3. Chaudhry, Muhammad Iqbal (2000) Pakistan Society, Lahore.
4. Horton, Paul B. and Leslie Gerald R. (Latest ed.). The Sociology of Social Problem, New York: Appleton century Crofts.

REFERENCE BOOKS

1. Horton, Paul, B. and Leslie Gerald R. (latest ed).The Sociology of Social Problem, New York: Appleton Century Crofts.
2. Nordskog, Joh, E,(latest) Analyzing Social Problems, News York: Henry Holt Inc.
3. Phillips, Harold A. and Henderson, David (latest ed) Contemporary Social Problems Englewood Cliffs, New Jersey, Prentice Hall Inc.
4. Senter, R. J. (1969). Analysis of Data - Introductory Statistics for the

Behavioral Sciences Illinois, Scott Freeman and Company.
5. Young, Pauline, V.(1990)Scientific Social Surveys and Research. Tokyo Charles E. Tutrtlle Co.

ARCHEOLOGY

PART I & II COURSE OUTLINE

Archeology
Part I & II
Course Structure

Part	Paper	Marks
I	Introduction to Archaeology and Ancient History	60
	Practical	15
Total Marks		75

II	Archaeological Heritage of Pakistan	75

Paper A: Introduction to Archaeology and Ancient History Max. Marks = 60

Part - I: Introductory Archaeology (4 out of 8 questions)

- Definition and Terminology of archaeology
- Aims and objectives of archaeology
- Brief history and development of archaeology
    - Relation of archaeology with History, Anthropology, Geography, Geology, Zoology, Botany, Physics and Chemistry
    - Basic Concept of Archaeology: artifacts, stratigraphy, archaeological sites, settlement- pattern, context
- Survey in Archaeology
- Excavation techniques
    - Chronology: artifacts, coins, inscriptions, CI4 dating, dendrochronology and correlation of artifacts

Part - II: Ancient History of South Asia (4 out of 8 questions)

- Sources of ancient history
- Vedic Aryans: their social, political, economic and religious life
- Buddhism: life and teachings of the Buddha
- Jainism
- Hinduism
- Achaemenian rule in Pakistan
- Alexander's invasion of Pakistan
    - Mauryan dynasty: administration of Chandragupta Maurya, Ashoka's contributions to Buddhism
- The Indus-Greeks
- The Scythians
- The Parthians
- The Kushanas: achievements of Kanishka
- Gandhara Art

- The Sasanians
- The White Huns
- Hindu Shahis

Practical **Marks: 15**

- Visit to local sites and museums
- Systematic surface collection
- Photographic documentation of archaeological site
- Identification and drawing of artefacts
- Study of regional maps
- Location of sites/monuments on the maps
- Identification of key features of different periods

Recommended Readings

1. Abdur Rahman. The Lost two *Dynasties of the Sahis.* Islamabad, 1979
2. Agrawal, D.P. Ghosh, A. (eds.). *Radiocarbon and Indian Archaeology.* Bombay, 1973
3. Allchin, B. Allchin, R. The Rise *of Civilisation in India and Pakistan.* Cambridge, 1982
4. Aitkin, M.J. *Science-based Dating in Archaeology.* Longman, London, 1990
5. Basham, A.L. The *Wonder that was India,* rpt. India, 1963
6. Bowman, S.G.E. *Radiocarbon Dating,* the British Museum publication, London, 1990
7. Cunningham, A. *Ancient Geography of India.* Calcutta, 1924
8. Dani, A.M. *Gandhara An of Pakistan.* Peshawar, 1968
9. Pagan, B.M. *In the Beginning: An Introduction to Archaeology.* Harper Collins, 7th ed., 1991
10. Hole, F. and Heizer, R.F. *Prehistoric Archaeology: A Brief Introduction.* New York, 1977
11. Joukowsky, M. A *Complete Manual of Field Archaeology. USA, 1980*
12. Knudson. *Culture in Retrospect* Chicago, 1978
13. Majumdar, R.C. et.al. *An Advanced History of India.* Part-l, London, 1960
14. Nasim Khan, M. *Buddhist Paintings in Gandhara.* Peshawar, 2000
15. Establishment at Kashmir Smast: A Preliminary Report, *Ancien Pakistan.* Vol. XIV, 2001, pp.223-314
16. Qureshi, I.H. (ed.). *A Short History of Pakistan.* Book One, Karachi, 1967
17. Renfrew, C. and Bahn, P. Archoeo/ogy: Theories, Methods *and Practice,* Thames and Hudson,
    London, 1991
18. Sehrai, F. *Buddha Story in the Peshawar Museum.* Peshawar, 1982
19. Smith V.A. The £or/y *History of India, from 600 BC to the Muhammad Conquest.* Oxford, 1967
20. Thaper, R. *A History of India,* vol. I, Penguin Books, New York, 1979
21. Wheeler, R.E.M. *Archaeology from the Earth.* London, 1961

Paper B: Archaeological Heritage of Pakistan Max. Marks = 75

Part - I: Prehistoric Period (4 out of 8 questions)

- Paleolithic (Lower, Middle and Upper): Soan Valley Culture, Rohri Hills
- Mesolithic: Sangao Cave, Khanpur Cave, Rohri Hills
- Neolithic (Early Farming Communities of NWFP, Balochistan, Punjab and Sindh): Mehrgarh, Sherikhan Tarakai, Kot Diji, Rahman Dheri
- Indus Urbanization (Early, Mature and Late Phase): Mehrgarh, Kot Diji, Rahman Dheri, Harappa, MohenjoDaro
- Post Indus Phase: Pirak, Jhukar, Jhangar, Cemetry-H
- Gandhara Grave Culture: Timargarah, Thana, Swat

Part - II: Historic Period (4 out of 8 questions)

- Hindu-Buddhist Period: Bala Hisar, Shaikhan Dheri, Bhir Mound, Sirkap, Dharmarajika Stupa, Julian Monastery, Butkara I, Butkara III, Takht-i Bahi, Kashmir Smast, Hund
- Islamic Period (Early, Sultanate, Mughal and Regional Dynasties): Mansoora, Banbhore,
  Thatta, Lahore Fort, Badshahi Mosque, Shalamar, Rohtas Fort, Gor Khuttri, Bala Hisar
- Sikh and British Period: Peshawar Museum, Islamia College, Taj Complex Nowshera, Jamrud Fort, Shabqadar Fort
- General Map of the region indicating physical features
- Location of prehistoric sites/monuments on the map
- Identification of characteristic features of various periods
- Identification of key artefacts of various periods
- Visit to sites and monuments in the area
- General Map of the region indicating physical features
- Location of historical sites/monuments on the map
- Identification of characteristic features of various periods
- Identification of key attributes of architecture of various periods
- Visit to historical sites and monuments in the area

Recommended Readings

1. Agrawal, D.P. *Archaeology of India.* Curzon Press Ltd., London, 1982
2. Allchin, R & B. *The Rise of Civilisation in India and Pakistan.* UK, 1982
3. Dani, A.H. Recent *Archaeological Discoveries in Pakistan.* UNESCO, Tokyo, 1988
4. Journals: *Pakistan Archaeology; Ancient Pakistan; Ancient Sindh. Journal of Asian Civilizations* (relevant volumes)
5. Khan, A.N. *AI-Mansura: A Forgotten Arab Metropolis in Pakistan.* Karachi, 1990
6. Khan, F., Knox, J. R. & Thomas, K. D. *Explorations and Excavations in Bannu District of North West Frontier Province of Pakistan.* 1985-1988, London, 1991
7. Khan, F.A. *Banbhore,* 4th ed. Karachi, 1976. *Cultural Heritage of Pakistan.* Karachi, Department of Archaeology, Government of Pakistan, 1964

BA, English (Elective)

Part I & II Course Outline

BA English (Elective)
Part I & II
Course Structure

Part	Paper	Paper Name	Marks
I	A	Introduction to English Literature & Prose	40
	B	Practical Criticism & Poetry	35
Total Marks			**75**
II	C	Dramas	40
	D	Novel & Short Stories	35
Total Marks			**75**

3rd YEAR ENGLISH ELECTIVE:

Paper-A
(Introduction to English Literature & Prose) 40 Marks

Introduction to English Literature:

(i) Figures of Speech
(ii) Elements of Novel
(iii) Rise of English Novel
(iv) 18th Century English Novel
(v) Types of English Drama
(vi) Elements of Drama

Recommended Books:

(a)	An Introduction to the Study of Literature	(William Henry Hudson)
(b)	An Outline History of English Literature	(William Henry Hudson)
(c)	A Short History of English Literature	(Ifor Evans)
(d)	Background to English Literature	(Kitab Mahal)

Prose: (Modern English Prose)
Selected Essays

1.	The Gentle Shakespeare	(Sir Walter Raleigh)
2.	The Sack of Rome	(Francis Hackett)
3.	Napoleon	(Hilaire Belloc)
4.	The Duke of Wellington	(Philip Guedalla)
5.	Gladstone	(Lytton Strachey)
6	Lenin	(Winston Churchil)
7.	War Guilt	(J.A Spender)
8.	Lord Oxford and Asquith	(Desmond Mac Carthy)
9.	The Patriotism of Britain	(Esme Wingfield-Start Ford)
10	A Piece of Chalk	(G.K Chesterton)
11.	Macbeth	(Lascelles Abercrombi)
12.	Lord Cantilupe's Political Faith	(G. Lowes Dickinson)
13.	Caesar's Funeral	(Harley-Granville-Barker)
14	Walking	(G. M. Trevelyan)
15	The World of Dickens	(Sir Arthur Quiller Couch)
16	Style	(M. Alderton Pink)
17	Innovations in Poetry	(V. Sackville West)
18	The Purpose of Education	(Arthur Clutton Brock)
19	Remedying World Finance	(Sir William Beveridge)
20	The Future of Earth	(Sir James Jeans)
21	Of Studies, Bacon Essays	(Bacon)
22	Poor Relations, Essays of Elia	(Charles Lamb)
23	Selected Snobberies	(Aldous Huxley)

24	Common Sense	(William Hazlitt)
25	On Being Modern Minded (Unpopular Essays)	(Bertrand Russel)

Paper- B:
(Practical Criticism & Poetry) Marks 35

Critical Estimation of a piece of poetry from the prescribed anthology of English verse with special focus on identifying figures of speech, symbolism and rhyme scheme etc shall be considered.

Poetry: ("Anthology of English Verse")

1-"The Tiger", Love's Secret and "The Little Boy" by William Blake
2-"Shakespeare's Sonnet No.30
3-"On His Blindness" by John Milton
4- "Extasie" by John Donne
5- Elegy Written in the Country Church Yard" by Thomas Gray
6- "It is a Beauteous Evening Calm and Free", The World is too much with us", "Sonnet Composed upon Westminster Bridge" , "A slumber did my spirit seal" ,"To Milton, "The Solitary Reaper" by William Wordsworth
7- "Ode on Dejection" by S.T. Coleridge
8-"Ode to the West Wind", "Stanzas written near Naples", "To Night" by P.B Shelley
9- "La Belle Dame sans Merci", "Ode to Nightingale", "Ode to Autumn" by John Keats
10- "Ulysses" by Tennyson
11-"The Last Ride Together", "The Patriot" by Robert Browning
12-"Among School Children", "Sailing To Byzantium" by W.B Yeats
13-"Animula" by T.S Eliot
14-"The Silken Tent" by Robert Frost
15-"The Water Carrier", "The Syntax of Remorse" by Daud Kamal

4th YEAR ENGLISH ELECTIVE:

Paper C: 40 Marks

Dramas

- Julius Caesar (William Shakespeare)
- Pygmalion (G. B Shaw)

Paper D: (Novel & Short Stories) 35 Marks

Novel: Joseph Andrews (Henry Fielding)

Short Stories:-

1-“The Tell Tale Heart” by Edgar Allen Poe
2-“The Beginning of Tomorrow” by Charles E Turner
3-“The Flying Machine” by Ray Bradbury”
4-“God sees the Truth But waits” by Tolstoy
5-“The Secret Life of Walter Mitty” by James Thurber

BA,ENGLISH(C)

PART I & II COURSE OUTLINE

English Compulsory
Part I & II
Course Structure

Part	Paper Name	Marks
I	**a.** The Pearl (John Steinbeck)	
	1. Long Questions regarding Character /Incident/ content	**15**
	2. Précis of a passage from the Novel prescribed	**15**
	b. Letter Writing	**10**
	c. Comprehension from Book-I	**15**
	d. Grammar Question from "Oxford Practice Grammar	**20**
	Total Marks	**75**

Part	Paper Name	Marks
II	a. Anthology of English Prose:	
	1. Long Question:	**15**
	2. Contextual Meaning	**10**
	b. Essay Writing:	**15**
	c. Comprehension from Book-II	**15**
	d. Grammar Question from "Oxford Practice Grammar	**20**
	Total Marks	**75**

BA English Compulsory
3rd & 4th Year (Regular & Private)

3rd YEAR ENGLISH COMPULSORY:

(a)	The Pearl	(John Steinbeck)
(b)	Continuous writing	(Letter Portion only)
(c)	Reading English Objectively	(Book-I)
(d)	Oxford Practice Grammar (Unit-I to Unit-75)	(John Eastwood)

Suggested Readings:

(i) High School English Grammar and Composition; (Wren & Martin)
(ii) Business Communication by Herta A-Murphy

Marks Allocation:

a.	The Pearl (John Steinbeck)	
	1. Long Questions regarding Character /Incident/ content,	15Marks
	2. Précis of a passage from the Novel prescribed.	15 Marks
b.	Letter Writing:	10 Marks
c.	Comprehension from Book-I	15 Marks
d.	Grammar Question from "Oxford Practice Grammar":	20 Marks
	Total Marks	**75 Marks**

4th YEAR ENGLISH COMPULSORY:

(a) Anthology of English Prose:

1. The Idea of Pakistan by Dr. M. Iqbal;
2. The Holy Prophet (SAW) by Syed Amir Ali
3. Quid-e-Azam by M.A.H Isphahani;
4. The Death of a Great Man (the Khyber Journal of Islamia College)
5. A Cold Wind at KittyHawk by E. Lerson;
6. Direct Energy from the Sun, (E Learson)
7. Iqbal's Message;
8. The Pukhtoons by Peler Mayne;
9. The Responsibilities of Youth by M.A Jinnah;

10. on Education by Albert Einstein;
11. Islam and Social Responsibility by TB Irving;
12. University Days by James Thurber;
13. Right and Wrong by CS Lewis;
14. Are Doctors men of Science? By GB Shaw;
15. Modern Gallantry by Charles Lamb;
16. The Beauty of Industry by Aldous Huxley;

(b) Continuous Writing (Essay Portion only)

(c) Reading English Objectively (Book-II)

(d) Oxford Practice Grammar (John Eastwood)
(Unit 76 to Unit 153)

Marks Allocation:

a.	Anthology of English Prose:	
	1. Long Question:	15 Marks
	2. Contextual Meaning	10 Marks
b.	Essay Writing:	15 Marks
c.	Comprehension from Book-II	15 Marks
d.	Grammar Question from “Oxford Practice Grammar”:	20 Marks
	Total Marks	**75 Marks**

EDUCATION

PART I & II COURSE OUTLINE

B.Sc Education Course Structure

Part	Paper Name	Marks
I	Educational Psychology	75
II	Principles of Education	75
Total		**150**

Paper I: Educational Psychology Max. Marks = 75

Note: 5 questions to be attempted out of 8

Educational Psychology

The nature and scope of educational psychology Role of "Educational psychology" in schools Methods of Educational psychology

i) Introspection method
ii) Observation method
iii) Experimental method
iv) Case study method **Growth and maturation** Two views of maturation Maturation in human infants Physical growth Mental development Social development **Human needs and their satisfaction**

Defining human needs, drives and motives Developmental tasks during childhood Developmental tasks during adolescent Problems of adolescent **The process of learning** Nature of learning Laws of learning

i) Law of effect
ii) Law of exercise
iii) Law of readiness Principles of learning Factors affecting learning **Intelligence and its measurement** Concept of intelligence IQ and its importance A brief description of intelligence tests Use of intelligence tests in schools **Motivation and reinforcement** Nature and importance of motivation

Nature and importance of reinforcement
Motivational techniques applied in the classroom
Handling overachievers and underachieves effectively **Memory and its process**
Definition of memory
Description of remembering and forgetting
Factors responsible to improve retention
Causes of forgetting **Personality and its development**
Definition of personality
Theories of personality
Judging personality
Biological and social factors in personality
The role of heredity and environment in the development of personality

Paper B: Principles of Education Max. Marks = 75
Note: 5 questions to be attempted out of 8

Concept and types of Education
a) Meaning of education
b) Formal education
c) Non-formal education
d) Informal education

Differentiation between goals, aims and objectives of education
Aims of primary Education in Pakistan
Aims of Secondary Education in Pakistan **Methods and approaches**
a) Kindergarten method, its principles and functions
b) Project method, its steps, principles and advantages
c) Importance of learner centered approaches in schools
d) Participatory approach, its application in elementary classes

Muslim contribution to educational thought
a) Our Holy Prophet (PBUH) as a great educator
b) Imam Ghazali's educational thought
c) Allama Iqbal's concept of individuality and character development

Issues of education in Pakistan
a) Girl education
b) Adult education
c) Environmental education
d) Population education
e) Dropout at elementary level

Role of various sectors in education
a) Role of family
b) Role of community
c) Role of school
d) Role of religion
e) Role of media **Education policies in Pakistan**
a) The first educational conference 1947
b) Commission on National Education 1959
c) Education policy 1972- 1980
d) National education policy 1998 - 2010

References:

- Crewel, T. (1997). Educational Psychology Windows on Teaching.
- Crow, LD. & Crow, A, (1985). Human Development and Learning. American Book Company, New York.
- Gibson, J.T. (1981). Psychology for the Classroom Prentice Hall.
- John, Roberth (1995). Classroom learning and teaching. Longman, publishers USA.
- Khattak Ibrahim (1999). Educational Psychology Peshawar. Ijaz Printers Pakistan.
- Salvin Robert E (1988). Educational Psychology. Theory into Practice (2nd Edition),
- John, Roberth (1995). Classroom learning and teaching. USA. Longman publishers.
- Salvin. Robert, (1988). Educational Psychology. Theory into Practice (2nd Edition).
- Government of Pakistan (1947). The First Education conference.
- Government of Pakistan (1959). Report of the commission on National Education. Karachi.
- Government of Pakistan (1972), Education Policy. Ministry of Education. Islamabad.
- Mehmooda Rehman (2000). Curriculum and Instruction, 1ER, University of Peshawar.

BLS PART I & II COURSE OUTLINE

CURRICULUM FOR Library Science AT BA/BSC LEVEL

BLS Course Structure

Term I	
Introduction to Libraries &IT	3
Collection Development	3
Bibliography	3
Introduction to Classification Theory and practice	3
Islamyat	3
English	3

Term II	
Management of Libraries	3
Introduction to Cataloguing	3
Reference Sources	3
Reference: Services	3
Pakistan Study	3
English	3

Detailed Course Outline

1. Introduction To Libraries:

a. Definition of Libraries, Types and Objectives of Libraries.
b. Various Sections of Libraries.
c. Importance of Libraries in Education and Society.
d. Development of Library and Librarianship in Pakistan.
e. Role of Librarian.
f. Fundamental of information Technology.
g. Information Storage, Retrieval and dissemination.
h. Role of IT in Library.
i. Basics of online searching and data telecommunication, CD-ROM, LAN, WAN,E-mail, Video-Conferencing, Tele-Conferencing, Digital Libraries, Digital Books.

2. Collection Development:

a. Concepts and definitions of collection development.
b. Types of collection.
c. Principles processes and sources of selection.
d. Selection problems, collection evaluation, collection development policy and its formulation.
e. Acquisition and automated acquisition.
f. Weeding and write off materials.
g. Impact of digital resources on collection development information policy.
h. Copyright, protection of intellectual properties.

3. Bibliography:

a. Meaning, definition and concept of bibliography.
b. Need and importance.
c. Historical development.
d. Types- Universal national, subject, commercial, Bibliography inner form, enumerative, analytical or critical, historical, textual, Bibliographical control at national pre-requisite national bibliographical control.
e. Preparation of bibliography.
f. Automated bibliographical control, UBC.
g. Bibliographic data base, Bibliometrices.
h. Bibliographical Organization, Webliography.

4. Introduction to classification theory and practice:

a. Meaning and definition of classification.
b. Brief history of classification schemes with special emphasis on the development during 19th and 20th Centuries and Islamic period.
c. Purpose of classification.
d. Comparative study of major classification schemes.
e. Study of classification schemes locally used.
f. Study of DDC 20th and 21st editions.
g. Electronic DDC.
h. Sear's list of subject headings.

5. Introduction to cataloguing; Theory and Practice:

a. Meaning and definition of catalogue.
b. Purpose and function of catalogue.

c. Forms and kinds of catalogue development of cataloguing codes and their limitations.

d. Shared and co-operating cataloguing, Centralized Cataloguing.

Practice

Descriptive Cataloguing, Books Mark

Comprehensive study of AACR-2R for Monograph and serial publication

Cataloguing of Pakistan and Oriental names

Practice AACR-2R for Monograph and serial

6. Management of Libraries:

a. Meaning, definition and concept of management.

b. Importance, development of management.

c. POSDCORB

d. Principles of management.

e. Controlling, Communication, Leadership, Management techniques in various types of Libraries and Information.

f. Management of Human Resources, Financial and Physical resources, Library Building, Library Statistics, Stock taking.

7. Management of Information Centers:

a. Librarian as information manager.

b. Introduction to various sections of libraries.

c. Acquisition, technical, circulation, and reference section.

d. Their processing; application of function, principle and techniques of management in library and information section.

e. Library personnel.

8. Reference Sources:

a. Definition and significance of reference sources.
b. Information and research centre.
c. Types of reference and information sources- printed reference sources and electronic reference sources.
d. Process of information searching.
e. Review of important ready reference sources.
f. Bibliographic and information sources in Pakistan.

9. Reference services:

a. CD-ROM application in information services.
b. Management and evaluation of reference and information services.
c. User education.
d. Supervision.
e. Instruction.
f. Guidance.
g. Storage and retrieval.
h. Bibliography.

HOME ECONOMICS

PART I & II COURSE OUTLINE

Home Economics
Part I & II
Course Structure

Year	Part	Paper Name	Marks
3rd	I	Child Development & Family Relations	60
	II	Clothing & Textiles (Practical)	15
		Total	75

Year	Part	Paper Name	Marks
4th	I	Food and Nutrition (Practical)	15
	II	Home Management	60
		Total	75

B.A/B.Sc Part-l (Third Year) HOME ECONOMICS (ELECTIVE).

Paper-A

Part I- Child Development & Family Relations

Part II - Clothing & Textiles.

Total Marks = 75
Theory = 60
Practical = 15
(Clothing & Textile)

(B.A/B.Sc Part II (Fourth Year)

Paper-B

Part I - Food and Nutrition

Part II - Home Management

Total Marks = 75
Theory = 60
Practical =15

Note: The practical will include marks for year's work and practical examination.

Syllabus and Courses of Home Economics (Elective).

Paper-A

Part I - Child Development and Family Relations

1. Introduction to the Study of Family life:
   a. Meaning and scope of Family Relations and Child-Development. Functions of the family: reproductive, economics, status conferring, socialization and economics, status conferring, socialization and security, Social change and family function.
   b. Cultural regulations of the Family Patterns.

2. Family Development and "Developmental Task" concept.
   a. The family life cycle-beginning Families, child- famines, families with School-age children, with teenagers. Families as launching center aging families.
   b. family developmental task at each of the above stage.

3. The child and his parents the patterns of prenatal development prenatal environmental influences. Health of the expectant mother and the neo born.

4. adult behavior and personality.
   a. the components of healthy personality. Sense of trust; sense of autonomy. Sense of initiative, sense of identity and sense of integrity.
   b. The self-structure in healthy personality. The home static behavior emotional maturity; adjustment mechanism;

rationalization; projection, sublimation, displacement and idealization.

c. The dynamic of family Interaction.

i). Social change and family organization. Values, functional roles and responsibilities; distribution of responsibilities. Understanding the aged, appreciation of their needs and outlook on life.

ii). Family Crises:-unemployment, illness. Death, divorce, desertion, .family disorganization in terms of values and cultural analysis.

Text Books

1. Duvall, E.I Family Development. JB Lippmcot Company, N.Y. 1957

References

1. Stone L.J. and 1 Childhood and Adolescence Random House. New York. 1957
2. Guard, Sydney Personal Adjustment. The Mc-Millan Co. New York, 1958.

Part-II Clothing and Textiles

I. A. Wardrobe Planning. Factors affecting the selection of Clothes in relation to principles and elements of Art:- a) Personality (b) Age (c) Figure, (d) completion (e) Climate (f) Occasion (g) Psychological impact.

b. **Clothing Needs**

Factors affecting the provision of Clothing for the Family, (i) income (ii) occupation (iii) Size of the family, (iv) Socio-psychological Impact.

ii. **Care and Storage of Clothing:**

General principles in the care of clothes made with cotton, silk, wool and synthetic fibers:

a. Laundering and ironing
b. stain removing
c. storage.

iii. **Fabric Finishes and their Effect:**

a) calendaring
b) meroerization
c) pre-shrinking
d) napping
c) sizing

iv. Dyeing of fibers, yarns and fabrics. Basic principles and practices.

Practicals

1. Removing following stains from. cotton, silk and wool fabrics:
   (a) Greese (b) tea (c) nail polish (e) grass.

2. Laundering garments of (a) cotton (b) silk (c) wool.

3. Knit a set for a newborn baby (consisting of coat, cap and socks).

4. Draft and stitch a kurta

5. Tie and dye a duppata.

6. Field trip to a textile mill and Clothing factory must be made to observe processes in manufacture.

TEXT BOOKS

1. Rayon Mildred-Graves. Your Clothes and Personality Appleton Century Crafts Inc. N.Y. Latest edition.

REFERENCES

1. Ruthbone and Trapley. Fabrics and Dress. Houghton Mifflin Company. Cambridge, Massachusetts, 1948.
2. Ervin, M. Practical Dress Design. The Mac-Millon Co. New York, U.S.A. 1954.
3. Patter, David M., Corbman, Bernard F.Fiber to Fabrics Mc-Graw-Hill Book Company, New York.

Part-l Food and Nutrition: HOME ECONOMICS - PAPER – B

UNIT-I: Nutrition

1. (a) Definition of Nutrition:
   - (i) Good nutrition
   - (ii) Mal-nutrition
   - (iii) Health.
   - (b) Definition of Nutritional Status.
   - (c) Characteristics of good nutritional status.

2. Nutrition during life cycle:-

- a) Infancy (6-1 year)
- b) Childhood
- c) Adolescents/teen-agers (13-19 years)
- d) Adults
- e) Pregnant woman/lactating woman.

UNIT-II Meal Management

1. Menu Planning:-

a. Principles of menu planning.
b. Factors affecting menu planning
   - i) Income
   - ii) Food groups
   - iii) Availability of food and cooking facilities
   - iv) Availability of time and Energy
   - v) Religion and culture
   - vi) Season
   - vii) Occasion
   - viii) Needs of family Members in health and Disease.

2. Food Preparation:

a. Sanitation in the Kitchen and store
b. Choice and use of suitable equipment and its care.
c. Weighing and measuring techniques.

3. Food Preservation:

- a) Importance
- b) Principles

c) Methods

d) Preservative - salt, vinegar, oil, sugars, chemicals & sun.

PRACTICALS

1. Planning of meals such as breakfast, lunch, dinner & tea parties prepare selected dishes from each menu.

2. Preservation of food:
   a) Jams & Jellies
   b) Chutnies & Pickies
   c) Squashes

Text Books

1. L. Jeen Bogert, George M. Brigs, Doris Howes Call way "Nutrition and Physical Fitness". W.B. Saunders Company, Philadelphia and London, 1969 (or latest).
2. Margaret Mewilliams. "Food Fundamentals" John wiley and Sons, Inc, New York. 1974 (or latest).

Reference Books

3. Gladys G. Peckham "Foundations of food Preparation" 3rd -Edition (or latest). Macmillan, Publishing Company Inc, New York, 1974 (or latest).
4. Dr. Doris Howes Calloway, Kathleen Oliver Carpenter "Nutrition and Health". Saunders College Publishing. New York. 1981.

PART- II HOME MANAGEMENT.

Definition and scope of Management.

i. Goals and values of the families, and their relationship to management practices. Steps in the process of management. Importance of effective management practices to the efficiency, welfare and happiness of the family.

ii. **Family resources:** kinds of resources and their relationship to management. Management of time and energy. Evaluation of common work methods in our homes. Fatigue, kinds of fatigue, causes and ways to minimize fatigue. Value and productive capacity of the individuals the community and the nation.

3. Money Management for the family:

(i) Income & kinds of income

(ii) Budgeting, purpose and techniques of budgeting

(iii) Spending, saving and: investment in relation of family goals

(iv) Some ways to increase family income

(v) Importance of the utilization of skills and abilities in increasing real income for the family

(vi) Intelligent buying

4. Equipment:

a. Selection of common equipment in the home its use and care.

b. Factors that influence the cost of equipment.

c. Care of materials used in construction of equipment glass, brass, silver, aluminum, stainless.

5. Art in the Home

a. Selection of furniture and Furnishings, considering principles of art.

b. Arrangement of furniture.

c. Care and maintenance.

Text Books

1. Nickell, P. Dersey, J.M Management in Family Living: Jhon Wiley and Sons, New York U.S.A.

References

1. Gorden and Lee. Economics for Consumers
2. Needham, M.A. Sgrong A.G. Better Homes Oxford University Press, Lahore.
3. Faulkner, R., Faulkner S. Inside Today Home Holt Rinchart and Winston Inc. New York, U.S.A.

LAW PART I & II COURSE OUTLINE

Law
Part I & II
Course Structure

Part	Paper	Paper Name	Marks
I	A	Jurisprudence	75
II	B	Muslim Law	45
II	B	Islamic Jurisprudence	30
Total Marks			150

SYLLABUS OF PRE LAWFOR B.A/BSC. Marks: 150,

Paper A Jurisprudence; Marks; 75

Definition of Jurisprudence. Kinds of Jurisprudence Analytical Jurisprudence, Historical Jurisprudence and Ethical Jurisprudence. Jurisprudence and Social Science. Kinds of Law.

(a) Natural Law or Morel Law

(b) Imperative Law

(c) Physical or Scientific Law

(d) Conventional Law

(c) Customary Law

(f) Particular or **Technical** Law

(g) International Law

(h) Civil Law.

Definition of "Law" Advantages and Disadvantages -of Law Justice according to law. Imperative Theory of Law. Territorial Nature of Law. Law and Equity, Classification of Civil Law. General Law and special Law and their sub divisions. Administration of Justice its meaning, necessity and origin. Kinds of Justice Natural Justice and legal rustic Kinds of legal justice Civil and Criminal and distinction between them.

Purposes of criminal Justice Deterrent, Preventive, Reformative and Retributive. Civil Justice, Primary Sanctioning rights and their enforcement. The State Nature and function. Definition of State its Primary function and Secondary function Territory and membership of the States Citizenship and Nationality Constitution of the States The Government of the State Independent and dependent States, Unitary and Composite State, The Dominion States, Theory of Sovereignty Infernal and External Sovereignty Legal and Political Sovereign; Bejure and Defector Sovereigns—Hobbes's Theory of Sovereignty.

The sources of Law Formal sources and material sources Divisions of Legal sources. sources of law and sources of rights ultimate legal principles.

Legislation. Its meaning and kinds Supreme and subordinate Legislation and kinds of the Later Relations of Legislation to other sources of law Codification. Its advantage and disadvantages Interpretation of enacted law kinds of interpretation.

Precedent-- Meaning of precedent; precedent as source of law, authority of precedent State deciscs classification of decedent: Ratio decision on the principle — When precedent may be disregarded, how a precedent is disregarded - circumstances attaching weight to precedent and circumstances of lessening authority of precedent-- Functions of the judge and the jury.

Custom "Importance" of Custom Kind of Custom, legal and conventional —local legal custom—local legal custom and precipition-Gcneral custom, legal and conventional.

Legal Rights. Definition of rights, duty and wrong and their inter relations—Fundamental Rights-essentials of a legal right -Classification or rights in strict and in wider senses—various kinds of legal rights.

Law of Property— Meaning of property kind of Property. Corporal and incorporeal property; movable and immovable property, Rights in rcprooria and its kinds-rights in alicna; leases, servitudes and securities—modes of acquisition of property-possession, agreement and inheritance.

Books Recommended; 4th year

Rajaa Said akbar Jurisprudence as Expounded by Salmond Pakistan Legal Decisions Publication (1966)

Paper B Marks 75

a. Muslim Law. 45

i. Introduction of Muslim Law into British india (Sectons 1 to 6 and 14) who is muslim Conversion to Islam and right of inheritance. Seets and Subsets of Muslim Sunis and SHIAS and their Sub –sect. Change of sect or sub-sect.

ii. M

arriage definition and capacil of marriage. Essentials of marriage. Valid, irregular and void marriages. Number of wives, Plurality of husbands. Marriage with a woman under going iddat Marriage between sunni Shaia. Effect of difference of Religion of marriage. Prohibition of marriage on grounds of

a) Consanguinity
b) Affinity
c) Fosterage

Unlawful conjunction. Difference between void and irregular marriages. Effects of

a. Valid marriage
b. Void marriage
c. Irregular marriage
d. Mutta marriage

Its incicents.

iii. Marriage of Minors, Guardianship in marriage, marriage brought about by

a. Father or grand father
b. Other guardians

Option of puberty. Effect of exercise of option of puberty Repudiation of marriage under the Dissolution of Muslim Marriage Act, 1939.

iv. Maintenance of wife3. Order of maintenance by Court Agreement for future maintenance. Maintenance on divorce. Suit for restitution /union of conjugal rights.

v. Dower, Definition of Kinds of Dower

a. Specified
b. Proper Dower
c. Prompt and
d. Defended.

Remission of dower by wife. Suit for dower liability of heirs for dower debt.

vi. Divorce. Defferent forms of Divorce by Talaq. Oral Talaq and Talaq in writing. Different modes of Talaq.

a. Talaq hasan
b. Talaq hasan and
c. Talaq-ul-Biddat or Talaq-i-Bidat

When an oral talq and talq in writin becomes dibat. When an oral talq and talq in writing becomes irrevocable. Delegation of power divorce. Talaq undr compulsion.

vii. Khula Mubaraat Effect of hula and Mubarat divorce.

viii. The dissolution of Muslims marriage Act of 1939.
Effect of divorce.

ix. Wills, Gifts, Legitimacy and Waqfs.

BOOKS RECOMMENDED

DF Mula— *Principles of* Mohammedan Law Sixteenth edition by Mr. Justice Hidayatullah (1968 Pak publications)

(B) ISLAMIC JURISPRUDENCE. 30Mark

Customs and usages of the Arabs before Islam Constitution of Arab Society. How crimes and disputes were tried. Different forms of punishment; Different kinds of marriage status of women for contracting marriage-Polygamy prohibited degrees for marriage. Divorce, its different forms. Adoption. Female infanticide. Nature of properly. Power of alianation, Different forms of sale and lease. Loans and riba Testamentary disportions of property. Succession and inheritance.

Source of Law. Quran as a source of law.

Traditions. Rules for ascertaining of authenticity of a tradition. Classification of traditions, Qualifications of nerra or ditionms. Mode of transmission. Prophet's; practice. Ijma. Definition of Ijma. Ijma as a source of Law, Different kinds of Ijma. Definition of Ijma, ljam» as Jt source of Law, Different kinds of Ijma. Who may participate in Ijama. Qualification of a Mujahid. Is Ijma confined to any age or country? Conditions relating to constitution of Ijama.

How for is unanimity of opinion a necessary condition? Reversal of our Ijama by subsequent Ijama. Modes of constitution of Ijama.

Customs and usages as sources of Law. Analogy, its definition AAnalogy as a source of Law. Condition for analogical deduction. Istihsan or juristic equity and its meaning istihasan as a source of law.

Public good. The doctrine of Public good. Istidlal its meaning and kinds.

Ijtihad and taqlid. Meaning of Ijtihad, who may be MUJTAHID? Status of modern lawyers. Dectrine of Taqlid. Duty of layment.

BOOKS RECOMMENDED.

Abdur rahim “the principles of Muhammadan jurisprudence”

Pakistan Legal Decisions Publications.

PASHTO PART I & II COURSE OUTLINE

Pashto
Part I & II
Course Structure

Paper	S#	Paper Name	Marks
A	1	*Prose (Nasar and Afsana)*	45
-	-	*a. Classical Prose*	15
-	-	*b. Modern Prose*	15
-	-	*c. Fiction*	15
-	2	Translation from English or Urdu into Pashto and Vice versa	15

-	3	Grammar	10
-	4	Appreciation on unseen Prose	5
Total Marks			**75**

Paper	S#	Paper Name	Marks
B	1	Poetry	40
-	-	a. *Classical*	20
-	-	b. *Modern*	20
-	2	Essay	20
-	3	Precise	10
-	3	Appreciation on unseen Prose	5
Total Marks			**75**

B.A Pashto

Paper A: Part-I (3rd Year) Marks: 75

1. *Prose (Nasar and Afsana)*
    a. *Classical Prose*
    b. *Modern Prose*
    c. *Fiction*
2. *Translation from Urdu or English into Pashto and Vice Versa*
3. *Grammar*
4. *Appreciation of unseen Prose*

Paper B: Part-II (4th Year) Marks: 75

1. *Poetry*
    a. *Classical*

b. Modern

2. *Essay*

3. *Precise*

4. *Appreciation of unseen Prose*

Text Books:

1. Pashto Nasar by Prof. Jahanzeb Niaz, Prof. Dr. M.Iqbal Naseem Khattak and Prof. Shah Jeluin.
2. Pashto Fiction by Prof. Jahanzeb Niaz, Prof. Dr. M.Iqbal Naseem Khattak and Prof. Shah Jchan.
3. Pashto "Nazain" by Dr. Muhammad Azain "Azain" and Prof. Dr. Yar Mitlianiniad Maglunooni.