

GUIDELINES OF THE SYLLABUS

N.B.—“The topics mentioned under each subject are only indicative and not exhaustive of the field covered by that subject. A candidate should study the whole subject with the help of relevant books. Some of the reading materials have been suggested for each subject for the guidance of the candidates”.

Note :— Candidates opting languages will be asked to answer some questions in the language concerned and will be expected to have knowledge of the Principal Authors, both Classical and Contemporary and to be able to compose in the language and translate from it into English and vice versa.

1. ESSAY (COMPULSORY)

Total Marks—100

Candidates will be required to write one or more essays in English. A wide choice of subject will be given.

2. ENGLISH (PRECIS & COMPOSITION) (COMPULSORY)

Total Marks—100

The examination will be based upon a paper carrying 100 marks and will be geared to test the candidates' ability to handle grammatical structure, reading comprehension and analysis, and precis writing and composition.

The candidates should be capable of :

- (a) Using English correctly and efficiently as a vehicle of communication.
- (b) Reading, comprehending and analyzing advanced texts.

Grammar and Vocabulary

The candidate's ability to handle the structure of English will be tested by framing items based upon grammatical categories that usually create problems for foreign students.

There shall be no prescribed course for this purpose.

Reading Comprehension and Analysis

Two unseen passages shall be given with a fixed reading time and multiple choice questions would be placed at the end to be answered. The passage for comprehension shall be fairly technical. The passages would be selected from writings on economic, social, cultural subjects and international affairs.

Precis Writing

The candidates will be required to present an acceptable precis of a given passage. The unseen passage will be selected from current, economic, social, cultural and international affairs.

ENGLISH (PRECIS & COMPOSITION) (COMPULSORY) SUGGESTED READINGS

Title	Author
1. A communicative grammar of English	Leech & Svartik
2. A Practical English grammar	Thomson & Martinet
3. A comprehensive English Grammar for Foreign students	Eckersley & Eckersley (Longmans)
4. Modern English Vol. I & II Harcourt Brace Jovanovich.	Rutherford
5. A University English Grammar.	R. Quirk & S. Greenbaum (Longmans)

6. Practical English Usage	Swan (OUP)
7. English Idioms	McMordie
8. Mastering Modern English	Etherton

3. GENERAL KNOWLEDGE

Total Marks—300

PAPER I

EVERY DAY SCIENCE (COMPULSORY)

Marks—100

1. Introduction

- Nature of Science ;
- Brief History of Science with special reference to contribution of Muslims in the evolution and development of science ;
- Impact of science on society.

2. The Physical Sciences

- (a) *Constituents and Structure* :— Universe, Galaxy, Solar system, Sun, Earth, Minerals ;
- (b) *Processes of Nature* :— Solar and Lunar Eclipses ; Day and Night and their variation ;
- (c) *Energy* :— sources and resources of Energy ; Energy conservation ;
 - (i) Ceramics, Plastics, Semiconductors ;
 - (ii) Radio, Television, Telephones, Camera, Laser, Microscope.
 - (iii) Computers, Satellites ;
 - (iv) Antibiotics, Vaccines, Fertilizers, Pesticides.

3. Biological Sciences

- The basis of life—the cell, chromosomes, genes, nucleic acids.
- The building blocks—Proteins. Harmones and other nutrients. Concept of balanced diet. Metabolism.
- Survey of Plant and Animal Kingdom— a brief survey of plant and animal kingdom to pinpoint similarities and diversities in nature.
- The Human body—a brief account of human Physiology. Human behaviour.

EVERY DAY SCIENCE (COMPULSORY) SUGGESTED READINGS

Title	Author
1. Exploring life Sciences	Turber, Kilburn & Howell
2. —Exploring Physical Science	Turber, Kilburn & Howell
3. Guide to Science	Isaac Asimov
4. Science Restated	Cassidy
5. Principles of Animal Biology	Khan, M. Rafiq

**GENERAL KNOWLEDGE
PAPER II
CURRENT AFFAIRS (COMPULSORY)**

(Marks—100)

Candidates will be expected to display such general knowledge of History, Geography and Politics as is necessary to interpret current affairs.

1. Pakistan's relations with its neighbours.
2. Pakistan's relations with Middle Eastern, African and Far Eastern Countries.
3. Pakistan relations with big powers.
4. International Economic issues and Pakistan.
5. Pakistan's role in regional and international organizations.
6. Nuclear politics in South Asia.
7. Structure of Pakistan's economy, economic planning and development strategies.
8. Central Issues and problems in the Educational Systems.
9. Issues in Pakistan Politics.
10. Superpowers and the Issues of World Order.
11. Major Contemporary Crises.
12. Major Economic, social and political issues of the world as reflected and discussed in periodicals and newspapers.

CURRENT AFFAIRS (COMPULSORY)

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. India, Pakistan, Bangladesh and Great Powers	G.W. Choudhry
2. Main Spring of Indian and Pakistani Foreign Policies	S.M. Burke
3. Pakistan's Foreign Policy	S.M. Burke
4. Pakistan and the Great Powers	Mohammad Ahsan Choudhry
5. Pakistan and the U.N.	Mohammad Ahsan Choudhry
6. Pakistan the long view	Lawrence Ziring et. al.
7. Political System of Pakistan	Khalid B. Sayeed
8. Politics in Pakistan	Khalid B. Sayeed
9. World Politics Since 1945	P. Calvocrassi
10. Conflict and Cooperation in the Indian Ocean : Pakistan's Interests and Choices	Pervaiz Iqbal Cheema
11. The Security of South Asia	Stephen P. Cohen
12. The Military and Politics in Pakistan	Hasan Askari Rizvi
13. Development strategies of Pakistan	M.L. Qureshi
14. The Management of Pakistan's economy 1947 to 1982	Ahmad, V., Rashid Amjad

**GENERAL KNOWLEDGE
PAPER—III
PAKISTAN AFFAIRS (COMPULSORY)**

(Marks—100)

1. Evolution and growth of Muslim Society in the Sub-continent.

2. *Ideology of Pakistan*.—Definition and Elucidation, Historical aspects : Muslim rule in the sub-continent, its downfall and efforts of Renaissance. Movements for reforms—Sheikh Ahmed Sarhindi, Shah Waliullah, Aligarh, Deoband, Nadwah, Anjamun Hamiat-e-Islam and other Educational Institutions— Sind Madressah and Islamia College Peshawar. Ideology of Pakistan in the lights of speeches and sayings of Allama Iqbal and Quaid-i-Azam.

3. *Pakistan Movement*.—Historical developments, important event, role of various individuals, communities and groups.

4. Political Developments in Pakistan since 1947 and efforts for promulgation of Islamic system.

5. *Land and People of Pakistan*.—Geography, Society, Natural resources, Agriculture, Industry, Education with reference to characteristics, trends and problems.

PAKISTAN AFFAIRS (COMPULSORY)

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. Ideological Orientations of Pakistan	Al Mujahid Sharif
2. Letters of Iqbal to Jinnah	Iqbal, Mohammad
3. Muslim Separatism in India (A brief Survey 1858—1947)	Hamid, Abdul
4. Modern Muslim India and the birth of Pakistan	Ikram, S. M.
5. Quaid-i-Azam and Pakistan	Dani, Ahmed Hassan
6. Struggle for Pakistan	Qureshi, I. H.
7. The case for Pakistan	Rafiq, Afzal M.
8. The Making of Pakistan	Aziz, K. K.
9. The Muslim Community of the Indo-Pakistan Sub-continent	Qureshi, I. H.
10. The Emergence of Pakistan	Mohammad Ali Ch.
11. Towards Pakistan	Waheed-uz-Zaman Hamid Yusuf
12. Pakistan A Study of Political Development 1947—97	
13. Ulema in Politics	Qureshi, I. H.
14. World Scholars on Quaid-i-Azam	Dani, Ahmed Hassan

4. ISLAMIAT (COMPULSORY)

Total Marks—100

1. Basic Problems of Human Life and their Solutions

Various sources of knowledge-revelation (Wahy) as a source of knowledge and solution to human problems. Divinity and Supremacy of Wahy.

2. Need of Religion and its role in Human Life

Islam and other religions.

3. Islam

Its concept and meanings, Deen and Muzhab. Islamic concepts of Universe and Humanity, Place of Humanity in Islam, Man as Vicegerent of Allah, Chief Characteristics of Islamic Ideology.

4. Fundamental Beliefs and Practices of Islam

(a) Tauheed (Unity of Allah), Risalat (Finality of the Prophethood), Akhirat (Day of Judgement).

(b) Salat, Soum, Zakat, Hajj, Jihad.

5. Islamic Way of Life

(a) Sources of Shariah : The Qu’ran, Sunnah, Ijma (Consensus), Qiyas and Ijtihad (reasoning).

(b) Social system in Islam : Responsibilities and mutual relationship of members of family, separate role of man and woman in an Islamic Social set up, concept of Woman’s freedom in Islam, Responsibilities of man and woman in character-building of new generation.

(c) Morality in Islam : Concept of morality, Relationship of morality and Faith, Islamic principles and methods of character-building, Moral values in Islam.

(d) Islamic Political System :—

(i) Legislative System

(ii) Judicial System

(e) Muslim ummah : Role and objectives of Muslim Ummah.

6. Quranic Ayat and their Translation.

Following last 10 surrah of the Holy Quran with their translations :—

1. SURRAH AL-FEEL
2. SURRAH AL-QURESH
3. SURRAH AL-MAOON
4. SURRAH AL-KAUSAR
5. SURRAH AL-KAFAROON
6. SURRAH AN-NASR
7. SURRAH AL-LAHAB
8. SURRAH AL- AKHLAS
9. SURRAH AL-FALAK
10. SURRAH-AN-NAS

اسلامی آیات (لاذنی)

کل نمبر 100

(پہلے پچھ 100 نمبر)

1۔ آیتوں کے صحیح معنی اور قرآن کا علم۔ لطف ظم کے لئے اور ترجمہ۔ وہی علامہ ذریعہ ظم اور ذمائی مسائل کا شرح۔ دینی کتب میں آیتوں اور ذمائی۔

2۔ حسابہ کی ضرورت اور آیتوں کے صحیح معنی اور ذمائی مسائل اور ذمائی۔

اسلام۔ سنی اور مفسد۔ دین اور مفسد۔ ہر قسم کے تقصیر عبادت اور دنیا میں اسلام میں اہمیت کو سمجھیں۔ آیتوں کو صحیح معنی اور ذمائی تعلیم کی ذمائی تعلیم کے ساتھ۔

اسلام کے ذمائی کتب اور مفسد۔

(الف) تفسیر۔ دین اور مفسد۔ تفسیر۔

(ب) اہل اللہ۔ مفسد۔ ذمائی۔ مفسد۔

اسلامی کلام اور ذمائی۔

(الف) شرحوں کے ساتھ ذمائی۔ مفسد۔ اہل اللہ۔ مفسد۔ اور مفسد۔

(ب) اسلام کا صحیح معنی اور ذمائی۔ مفسد۔ مفسد۔ اور ذمائی اور ذمائی۔

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ISLAMIAT (COMPULSORY)

SUGGESTED READINGS

Title	Author
1. Introduction to Islam.	Dr. Hamidullah
2. Islamic Ideology	Dr. Khalifa Abdul Hakim
3. Ideology of the Future	Dr. Muhammad Rafiuddin
4. Islam : The Misunderstood Religion	Muhammad Qutub
5. Islam : Its meaning and Message	Khushid Ahmed
6. Islam the Religion	Syed Anwar Ali
7. The Religion of Islam	Ahmad A. Galwash
8. Outlines of Islamic Culture	A.M.A. Shushtery

5۔ اسلامی تنظیم اور ان کے اصول اور ذمائی۔

16۔ اسلام اور ذمائی۔ مفسد۔ اور ذمائی۔ اور ذمائی۔

17۔ اسلام اور ذمائی۔ مفسد۔ اور ذمائی۔ اور ذمائی۔

18۔ اسلام اور ذمائی۔ مفسد۔ اور ذمائی۔ اور ذمائی۔

19۔ اسلام اور ذمائی۔ مفسد۔ اور ذمائی۔ اور ذمائی۔

20۔ اسلام اور ذمائی۔ مفسد۔ اور ذمائی۔ اور ذمائی۔

21۔ اسلام اور ذمائی۔ مفسد۔ اور ذمائی۔ اور ذمائی۔

22۔ اسلام اور ذمائی۔ مفسد۔ اور ذمائی۔ اور ذمائی۔

23۔ اسلام اور ذمائی۔ مفسد۔ اور ذمائی۔ اور ذمائی۔

24۔ اسلام اور ذمائی۔ مفسد۔ اور ذمائی۔ اور ذمائی۔

25۔ اسلام اور ذمائی۔ مفسد۔ اور ذمائی۔ اور ذمائی۔

26۔ اسلام اور ذمائی۔ مفسد۔ اور ذمائی۔ اور ذمائی۔

5. ACCOUNTANCY AND AUDITING

Total Marks—200

PAPER I

(Marks—100)

ACCOUNTING

Principles of Accounting and their applications to all types of Business Organizations—Banking, Insurance, Investment, Trading and Industrial Concerns, Accounting for non-profit Organisations, Work-sheet, Financial statements, Financial Reporting, Financial Analysis and Budgeting, Depreciation, Partnership.

Note.—Accounting for Executors, Trustees of Deceased Persons, Liquidators, Receivers, Official Agencies, Assignees etc. and Accounting for Multinational Corporation will not be included.

PAPER—II

(Marks—100)

(a) Cost Accounting

Principles of Cost Accounting, Relationship of Cost Accounting to Financial Accounting, Cost Accounting as a tool of management—use of Cost information, Cost flow, Cost elements, Costs classification, Process Cost and job—order Cost Accounting, Costing for Joint and by—Products, Standard Cost Accounting, reconciliation of Financial Accounts with Cost Accounts.

(b) Auditing

Principles of Auditing, The Accounting System, Its importance to Independent Audit, Internal Control, Internal Audit, Rights and Duties of Auditors. Professional Liabilities of an Auditor, Application of Auditing Principles and Techniques to all Types of Trading, Commercial, Industrial, Banking, Insurance and Investment under-takings, Audit programme, Special Audit Investigation of actual or suspected Frauds, Limitations of Audit, Audit Report, Certificates and Opinion as required under Companies Act, Securities Exchange Authority Rules, Auditing and EDP Systems.

(c) Income Tax

Principles of Computing taxable income and total income for the purposes of Income Tax, Universal Self-Assessment.

Specialized knowledge of Income Tax will not be expected. Candidates will be required to have a sound grasp of the provisions of Sections 4, 11, 12, 13, 14, 15, 16, 18, 19, 39, 39 (3) and (4), 40, 72, 87, 92, 93, 98A, 98B, 98C, 101, 114(1), 114(3), and 4, 120, 122, 123, 124, 147, 176, First Schedule and 2nd Schedule of Income Tax Ordinance 2001 as amended upto date and the connected Rules contained in Income Tax Rules, 2002.

(d) Business Organization and Finance

Nature and Scope of Business Organization, Forms of Business Organization—Sole Proprietorship, Partnership, Joint Stock Company, Cooperative Society, Company Promotion and Management, Insurance, business Combinations, Principles of Business Finance—Short Term, Intermediate Term and Long Term financing, expansion and contraction, Ratio analysis—Sources and flow statement, Role of Financial Institutions.

6. Cost Accounting	Nisar-ud-Din
7. Cost Accounting	S. Qavi Ahmad
8. Auditing	Dicksee, L.R.
9. Companies Act 1984	
10. Practical Auditing	Spiecer and Pegler
11. Principles and Procedure of Auditing	Kh. Amjad Saeed
12. Income Tax Ordinance 2001 (Amended to date)	
13. Income Tax Law (Latest edition)	Kh. Amjad Saeed
14. Business Organization	Nisar-ud-Din
15. Principles and Practice of Commerce	Stephenson
16. Basic Business Finance	Hunt, Williams and Donaldson
17. Income Tax Law Vol. I & II (Latest edition)	Luqman Baig

6. AGRICULTURE

Total Marks—100

1. Natural Resources (Land, Water, Biological, Environmental, Solar and energy) as bases for agricultural production. Agriculture as integrated system of components like Crops, Livestock, Fisheries, Forestry, Range Management, Socio-economics etc. Role of research and newer technologies in current and future agriculture in Pakistan.

2. Elements of climate and their relationship with crop growth, Factors of soil, Soil formation and development of soil profile, Soil texture and structure and their management, Soil fertility and fertilizer requirement of various soils and crops, Role of organic matter in soil ; Water requirements of crops and water use efficiency, Cropping pattern and crop relations, Systems and types of farming; Nature, formation and reclamation of salt affected and water-logged soil, Soil erosion and conservation.

3. Physiology of Growth and development, growth curves, growth regions, RGR, NAR and LAR in relation to biomass production. Seed growth and assimilate partitioning, Harvest index. Photoperiodic and thermoperiodic responses of crop plants, photorespiration. Nitrogen fixation, Nitrogen cycle, factors affecting biological N-fixation.

4. The modern concept of genetics, gene and gene function, application of genetics for the improvement of crops.

5. Modern concept of Horticultural industry, Plant propagation, Major management and breeding problems in fruits and vegetables.

6. Pests and diseases of agricultural crops, Principles and methods of pest and diseases control, Pesticides—their application and action. Modern concept and principles of insect pest management.

7. Role of agriculture in the national economy. Agricultural mechanization. Land tenure and Land reforms. Population problems of rural Pakistan. Major issues in agriculture and agricultural development in Pakistan.

ACCOUNTANCY AND AUDITING

SUGGESTED READINGS

Title	Author
1. Accountancy	Pickles, W.
2. Advanced Accounting Vol.I & II	Muin-ud-Din
3. Book Keeping and Accounts	Big, W.S.
4. Principles and Practice of Book Keeping and Accounts	Vickery, B.G.
5. Cost Accounting, Planning and Control	Matz and Usry

AGRICULTURE

SUGGESTED READINGS

Title	Author
1. Agriculture in India Vol. I & II	Kamar, L.S.S.
2. An Introduction to Tropical Agriculture	Temporary H & D Grit, H.
3. A treatise in Horticulture	Gilani, M.A.
4. An Introduction to Animal Husbandry	King Black Well, J.O.L.
5. Breeding Field Crops	Poehlman

6. Disease of Field Crops	Dickson, J.G.
7. Agricultural Insects Pests of Tropics and their control.	Hill, S.D.
8. Forest Ecology	Spurr, S.H.
9. Fundamentals of Soil Science	Foth
10. Irrigation Principles and Practicals	Isrealson, O.W.
11. Manual of Plant Production	Abdul Manan
12. Principles of Agronomy	Mudliar, W.T.S.
13. Principles of Field Crop Production	Martin, J.H. & Leonard, W.H.
14. Principles of Genetics	Gardner, E.J.
15. Physiology of Crop Plants	Gardner, Peares and Mitchal
16. The Nature and Properties of Soil	Buckman, H.O. & Bready, N.C.
17. Physiology of Growth and Development	Willking
18. Plant Pathology	Agrioes, G.N.

7. APPLIED MATHEMATICS

PAPER—I
Total Marks—200
(Marks—100)

Candidates will be asked to attempt any two questions from Section A and any three questions from Section B.

SECTION A

Vector Analysis

Vector algebra, scalar and vector product of two or more vectors, Function of a scalar variable, Gradient, divergence and curl, Expansion formulae, curvilinear coordinates, Expansions for gradient, divergence and curl in orthogonal curvilinear coordinates, Line, surface and volume integrals, Green's, Stoke's and Gauss's theorems.

Statics

Composition and resolution of forces, Parallel forces, and couples, Equilibrium of a system of coplanar forces, Centre of mass and centre of gravity of a system of particles and rigid bodies, Friction, Principle of virtual work and its applications, equilibrium of forces in three dimensions.

SECTION B

Dynamics

Tangential, normal, radial and transverse components of velocity and acceleration, Rectilinear motion with constant and variable acceleration, Simple harmonic motion, Work, Power and Energy, Conservative forces and principles of energy, Principles of linear and angular momentum, Motion of a projectile, Ranges on horizontal and inclined planes, Parabola of safety. Motion under central forces, Apse and apsidal distances, Planetary orbits, Kepler's laws, Moments and products of inertia of particles and rigid bodies, Kinetic energy and angular momentum of a rigid body, Motion of rigid bodies, Compound pendulum. Impulsive motion, collision of two spheres and coefficient of restitution.

APPLIED MATHEMATICS

PAPER—II
(Marks—100)

Candidates will be asked to attempt any two questions from Section A, one question from Section B and two questions from Section C.

SECTION A

Differential Equations

Linear differential equations with constant and variable coefficients.

Non-linear equations. Systems of equations. Variation of parameters and the power series method.

Formation of partial differential equations. Types of integrals of partial differential equations, Partial differential equations of first order. Partial differential equations with constant coefficients, Monge's method. Classification of partial differential equations of second order. Laplace's equation and its boundary value problems. Standard solutions of wave equation and equation of heat induction.

SECTION B

Tensor

Definition of tensors as invariant quantities. Coordinate transformations. Contravariant and covariant laws of transformation of the components of tensors. Addition and multiplication of tensors. Contraction and inner product of tensors. The Kronecker delta and Levi-Civita symbol. The metric tensor in Cartesian, polar and other coordinates. covariant derivatives and the Christoffel symbols. The gradient, divergence and curl operators in tensor notation.

SECTION C

Elements of Numerical Analysis

Solution of non-linear equations, Use of $x = g(x)$ form. Newton Raphson method, Solution of system of linear equations. Jacobi and Gauss-Seidel Method. Numerical Integration. Trapezoidal and Simpson's rule. Regula falsi and iterative method for solving non-linear equation with convergence. Linear and Lagrange interpolation. Graphical solution of linear programming problems.

APPLIED MATHEMATICS

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. Classical Mechanics	Goldstein
2. Lectures on Ordinary Differential Equations	Hille, E.
3. Lectures on Partial Differential Equations	Petrovsky, I.G.
4. Mechanics	Symon, G.F.
5. Mechanics	Ghori, Q.K.
6. Mathematical Physics, An Advanced Course	Mikhin, S.G.
7. Ordinary Differential Equations.	Easthan, M.S.P.
8. Principles of Mechanics	Synge and Griffith
9. Principles of Mechanics	Hauser.
10. Partial Differential Equations	Sneddon. I.N.
11. Theoretical Mechanics	Becker
12. Theoretical Mechanics	Bradsbury
13. Theory of ordinary differential equations	Goddington, E.A. and N. Livenision
14. Vector and Tensor Methods Cartesian Tensors	Charlton Jeffreya

8. ARABIC

PAPER—I
Total Marks—200
Marks—100

- (a) The Pre-Islamic Arabic Literature.
- (b) The Quran, its language, contents and style; its influence on the subsequent literature.

- (c) Quranic semantics and etymology with special reference to Ibn Manzoor's Lisan al'Arab and Raghīb al-Asfahani's Mufradat fi Gharīb al-Quran.
 - (d) Literary History and Literary criticism—literary movements, classical background, socio-cultural influences and modern trends. Origin and development of modern literary genres, including drama, novel, short story, essay.
 - (e) Contribution of Arabs in the fields of science, philosophy and linguistics with special reference to the views of the Ibn Khaldun, al-biruni, al-Jahiz, Ibn Maskawaih, Ibn Maja, al-Kasai and Sebawaih.
 - (f) A short introduction to Pakistani Arabic literature in the fields of prose and poetry.
 - (g) The contemporary Arabic literature in Egypt, Lebanon and Iraq with special emphasis on the literature of al-Mahjer and its outstanding representatives such as Jabran Khalil Jabran, Iliā Abu Medhi, Mckhail Naeema, and Umer Abu Risha.
2. A short Essay in Arabic.

PAPER—II

(Marks—100)

This paper will require first-hand reading of the texts prescribed and will be designed to test the candidates critical ability.

Poetry

1. *Imarul Qais* : His Maullaqah :—
"Qifaa Nabki mim Zakraa Habibin Wa Manzili" (Complete).
2. *Zohair Bin Abi Sulma* : His Maullaqah :—
"A Min Umme Aufaa Dimnatun lam takalami" (Complete).
3. *Hassan Bin Tabit* : The following five Qasaid from his Daiwan : From Qasidah No. I to Qasidah No. IV and the Qasidah :—
"Lillahi Daru Kaaba Nadamtuhum.
4. *Labeed* : Afatiddiyaru Mahalluha Wa Maqammuha Mahmud Timur : Story : "Ammi Mutawalli" (From :)
5. *Taufiq Al-Hakim* : Dramas : Sirrul Muntahiraa" from his book "Masra-hiyaatu Tufiqal Hakim".
6. *Dr. Rana M. N. Ehsan Elahie* : Nafais al-Adab, [P.U.B.A. (Hons) Course].
7. *Dr. Jalal al-Khayyat and others* :

Jarikh-ul-Abad-il-Arabi-il-Hadith

8. Dr. Taha Hussain : *Hadith al-Araba'a*
9. Isa an-Na'uri : *Adab al-mahjer*
10. George Saidah : *Adabuna wal-Udaba fi Adab al-Mahjer*
11. Dr. De Boer : *The History of Philosophy in Islam*

ARABIC

SUGGESTED READINGS

Title	Authors
1. The Contribution of India to the Arabic Literature.	Dr. Zubaid Ahmed

(پہلی بار امتحان میں یہاں پر مقررہ کتابیں پیش کرنا ہوں گی)

ذکرہ بالا کتاب کا ترجمہ

1.	انصرا اجمالی	الدكتور طارق حنين
2.	جوانا سوسہ	محمد قمر الزمان
3.	اسانے اخذ و تاجرو سے	الدكتور طاهر معروف
4.	تاريخ الادب العربي	احمد حسن الزيات
5.	تاريخ الادب العربي الحديث	الدكتور جاسم الجباري
6.	(تاريخ الادب العربي الحديث - مصر)	الدكتور طارق حنين
7.	تاريخ الادب العربي الحديث	الدكتور طاهر معروف
8.	(تاريخ الادب العربي الحديث - مصر)	علي محمد نوان
9.	تاريخ الادب العربي الحديث	محمد تميم زيات
10.	تاريخ الادب العربي الحديث	علاء الدين محمد حنين
11.	تاريخ الادب العربي الحديث	علاء الدين محمد حنين
12.	تاريخ الادب العربي الحديث	علاء الدين محمد حنين

11. Literary History of the Arabs Nicholason
12. Arabic Grammer Thatcher

9. BALOCHI

بلوچی

1.	تاریخ الادب العربي	100 نمبر
2.	تاریخ الادب العربي	(اختیار سے)
3.	تاریخ الادب العربي	1. گنجینہ شامی
4.	تاریخ الادب العربي	2. تہذیب شامی
5.	تاریخ الادب العربي	3. تاریخ
6.	تاریخ الادب العربي	4. تاریخ (جام دوکت)
7.	تاریخ الادب العربي	5. (ب) روانک (نثر)
8.	تاریخ الادب العربي	1. تاریخ
9.	تاریخ الادب العربي	2. گنجینہ (روایت)
10.	تاریخ الادب العربي	3. گنجینہ
11.	تاریخ الادب العربي	4. تاریخ

(پہلی بار امتحان میں یہاں پر مقررہ کتابیں پیش کرنا ہوں گی)

ذکرہ بالا کتاب کا ترجمہ

1.	تاریخ الادب العربي	100 نمبر
2.	تاریخ الادب العربي	(اختیار سے)
3.	تاریخ الادب العربي	1. گنجینہ شامی
4.	تاریخ الادب العربي	2. تہذیب شامی
5.	تاریخ الادب العربي	3. تاریخ
6.	تاریخ الادب العربي	4. تاریخ (جام دوکت)
7.	تاریخ الادب العربي	5. (ب) روانک (نثر)
8.	تاریخ الادب العربي	1. تاریخ
9.	تاریخ الادب العربي	2. گنجینہ (روایت)
10.	تاریخ الادب العربي	3. گنجینہ
11.	تاریخ الادب العربي	4. تاریخ

10. BOTANY

Total Marks—200

PAPER—I

(Marks—100)

1. Thallophytes :
 - (a) Phycology : Origin, evolution, distribution and classification with reference to range, structure, life history, ecology and economic importance of the main groups of algae.
 - (b) Mycology and Plant Pathology Structure, development reproduction, classification; phylogeny, physiology and economic importance of the main groups of fungi. Diseases of economic importance and general principles of their control.
2. Bryology : Evolution of gametophytes and sporophytes.
3. Pteridophyta and Gymnosperms : General structure, life history and evolutionary tendencies. Ontogeny and structure of seed.
4. Anatomy and Embryology : Primary and secondary tissues. Meristems, tissue differentiation, normal and abnormal secondary growth, anatomy of leaf, stem and root. Micro and megasporogenesis, pollination mechanism, fertilization, development of embryo and endosperm. seed dispersal.
5. Taxonomy of Angiosperms : Systems of classification. Rules of botanical nomenclature. Concepts of speciation. Introduction to modern trends in plant taxonomy : Bio-systematics, chemotaxonomy and numerical taxonomy.

BOTANY**PAPER—II**

(Marks—100)

1. Plant Physiology : Plant water relations, osmotic quantities, absorptions, transpiration, role of essential mineral elements, their uptake and distribution, growth and development, plant hormones, photoperiodism, vernalization. Dormancy and seed germination. Biochemistry of carbohydrates, proteins and fats with reference to plants. Enzymes. Plant pigments. Photophosphorelation, path of carbon in photosynthesis, oxidative phosphorelation (respiration), nitrogen and fat metabolism.
 2. Ecology : Influence of climatic, edaphic and biotic factors on plant growth. Sampling techniques. Major formations in relation to climatic zones. Concepts of ecosystems and their productivity, Ecological energetics, efficiency, pyramids, food chains and trophic levels.
- Salinity and water logging in Pakistan, causes, reclamation, soil erosion, methods of control and conservation. Pollution and conservation of natural resources.
3. Cytology : Detailed study of ultrastructure of cell. Mitosis and meiosis. Significance of meiosis.
 4. Genetics :
 - (a) Mendelian Genetics, Linkage, crossing over, sex linked genes, lethals, balanced lethals. Mutation, polyploidy.
 - (b) Biochemical Genetics : Biochemical nature of hereditary material, genetic Code, Fine Structure of gene, transduction and transformation.
 5. Evolution : Theories of evolution, Neo-Darwinism. Neo-Lamarckism. Adaptive mutations.

BOTANY**SUGGESTED READINGS**

<i>Title</i>	<i>Author</i>
1. An Introduction of Plant Diseases	Wheeler, B.E.J.
2. An Introduction to Plant Anatomy	Eames, A.G & Mc. Daniels, L.H.
3. An Introduction to Embryology of Angiosperms	Maheshveri

4. Plant Taxonomy and Biosystematics	Clive, A. Stace
5. The Biology of the Algae (Second Edition)	Round, F.E.
6. The Structure and Life of Bryophytes	Watson, E.V.
7. The Morphology of Pteridophytes	Sporne, K.R.
8. The Morphology of Gymnosperms	Sporne, K.R.
9. Cytology	Wilson, G.B. & Morrison, J.H.
10. Diagnosis and Improvement of Saline and Alkali Soils (ed)	Richards, L.A.
11. Plant Physiology (Second Edition)	Frank, B. Salisbury & Cleon W. Ross
12. Plant and the Ecosystem	Billings, W.D.
13. Principles of Genetics	Gardner, E.J.
14. Morphology of Plants	Bold, Harold, C.
15. Introduction to fungi	Webster, J.
16. Plant growth and Development	Leopold, A.C. & Kriedmann, P.E.
17. Terrestrial Plant Ecology	Barbour, M.G. & Bark, J.H. Titts, W.D.

11. BRITISH HISTORY

Total Marks—200

British History.—The history of the British Isles and of the British Empire and Commonwealth.

Paper I.

From 1688 to 1850

(Marks—100)

Paper II.

From 1850 to the present day.

(Marks—100)

Note.—Credit will be given in both the papers, not only for precise presentation of facts, but also for sound critical judgement.

BRITISH HISTORY**SUGGESTED READINGS**

<i>Title</i>	<i>Author</i>
1. A Text Book of Modern English History	Southgate, G.W.
2. A Text Book of European History	Southgate, G.W.
3. England in the Eighteenth Century	Serlley, W.T.
4. Europe Since Napoleon Harmondswarth	Thompson, David
5. English Social History	Trevelyan, G.M.
6. History of Britain	Carter, E.H.
7. History of England	Wood, E.L.
8. Modern Britain	Derry, J.K. & Jarman, T.L.
9. The Struggle for Mastery in Europe 1848—1918	Taylor, A.J.P.
10. The Penguin Dictionary of English and European History	Williams, E.N.

11. Britain Between the Wars Movat, Charles L.
12. Democracy : Great Britain 1815—1914 Bentley, Michael

12. BUSINESS ADMINISTRATION

Total Marks—100

Candidates will be asked to attempt total Five questions including one compulsory (objective type) question. They will attempt at least one question (out of two) from each part. Short note within the question (without choice) can also be given.

PART-I

MANAGEMENT

1. Nature And Scope of Management-Different Schools of thought.
2. Planning—Planning process; Planning tools; Change Management.
3. Organisation—Type of Organisation; Theory of Organisation; Group dynamics ; Staffing.
4. Actuating—Leading; Approaches to Leadership—Coordinating; Communicating; Motivating.
5. Controlling—Budgetary Control; Budgetry process.

PART-II

PRINCIPLES OF MARKETING

1. An overview of Marketing.
2. Marketing's Role in Society and inside a Firm.
3. Environment of Marketing.
4. Strategic Planning and Marketing.
5. Marketing Mix *i.e.* Product, Pricing, Place (Distribution, Channels), Wholesaling, Retailing, Sales Promotion (Advertising, Public Relations).
6. Global Marketing.

PART-III

FINANCIAL MANAGEMENT

1. Nature and Scope of Financial Management
2. Interpretation of Financial Statement—Ratio analysis, Trend analysis—Common size analysis.
3. Time Value of Money—Concept of TVM; Net Present Value; Pay Back period; Internal rate of return.
4. Working Capital Management—Cash Management; Receivable Management; Inventory Management.
5. Port Folio Management—Types of Investment; Financial Securities; Diversification of Risk.
6. Accounting—Accounting Cycles, Preparation of Financial Statements; Balance Sheet, Income Statement.

BUSINESS ADMINISTRATION

SUGGESTED READINGS

Title	Author
1. Management	Robins Stephen P.
2. The New Management	Robert M. Fulmer
3. Management	Horold Koontz and Heinz Wehrich
4. Management	James A. F. Stoner and Charles Wanke

5. Management Arthur G. Bedeian
6. Marketing Management Philip Kotler
7. Fundamentals of Marketing William J. Stanton
8. Marketing Joel R. Evans
9. Marketing Courtland L. Bovee.
10. Putting Total Quality Management to Work Marshal Sashkin and Kenneth J. Kiser
11. Fundamentals of Financial Management Van Horn
12. Essentials of Managerial Finance J. Fred Weston, Eugene and Brigham
13. Financial Management Gitt Man

13. CHEMISTRY

Total Marks—200

PAPER—I

(Marks—100)

1. *Atomic structure.*—Quantum theory, Schrodinger equation, Particle in box, hydrogen atom. Hydrogen moleculeion, hydrogen molecule. Theories of hydrogen and metallic bonding.

2. *Electrochemistry.*—Ionic equilibria, theory of strong electrolytes; ebye-Huckel theory of activity coefficients, galvanic cells, memberane equilibria and fuel cells. Theories of Acids and Bases, glass electrode, measurement of pH. Electrolysis, overvoltage and corrosion.

3. *Thermodynamics.*—First law of thermodynamics, internal energy, enthalphy functions. Thermochemistry, Entropy and second law of Thermodynamics, Free energy and chemical equilibrium.

4. *Chemistry of Following Elements.*—Oxygen, Carbon, Chlorine, Silicon, Nitrogen, Phosphorus.

5. *Metallurgy of the Following Elements.*—Copper, Aluminium, Iron and Silver.

6. *Inorganic Chemical Industries.*—Sulphuric Acid, Fixation of Nitrogen, Chemical Fertilizers, Semi-conductivity devices. Cement, Glass and Ceramics.

7. *Chemistry of Transition Elements.*—General characteristics of the group based on the electronic configuration of the elements. Complex compounds. Nature of Coordinate Bond, Historical development, Applications of Valence Bond, Molecular Orbital and Crystal Field Theories to explain the structures of the Complex Compounds.

8. Pollution—Water, air.

CHEMISTRY

PAPER—II

(Marks—100)

1. *Theory of Chemical Bonding.*—Elements of Valence bond and molecular orbital theories (idea of bonding, non-bonding and anti-bonding orbitals) Sigma and Pi bonds. Hybridization, Shape of molecules.

2. *Chemical Kinetics.*—Rate law and its determination Order of reaction. Experimental methods. Temperature Dependence of rate constants. Study of mechanism of a few selected reactions (1st and 2nd under reaction only).

3. *Surface Chemistry and Catalysis.*—Physical adsorption and chemisorption. Surface area determination. Homogeneous and Hetrogeneous Catalysis. Acid-base and Enzyme Catalysis.

4. *Physical Organic Chemistry.*—Elements of Organic reaction mechanism. Optical and Geometric Isomerism. Conformational analysis. Resonance. H—Bond and its effects on the properties of Organic Compounds.

5. *Organic Halogen Compounds.*—Types and Synthetic application. Grignard Reagents.

6. *Chemistry of Carbonyl Compounds*.—Types of Carbonyl Compounds. Preparation and reactions of Aldehydes and ketones.

7. *Aromatic Chemistry*.—Structure of Benzene with particular reference to Mechanism of Electrophilic Substitution Reactions.

8. *Organic Nitrogen Compounds*.—Diazonium Salts and their synthetic applications. Preparation and reactions of Aromatic Amino Compounds. Introduction to the Study of Dyes with particular reference to Azodyes.

9. *Chemistry of Natural Products*.—Elementary study of Carbohydrates. Oils and Fats. Alkaloids and Vitamins.

10. *Industrial Organic Chemistry*.—Organic Polymers. Fermentation processes including preparation of Anti-Biotics. Petro-Chemical Industry.

CHEMISTRY

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. Advanced Inorganic Chemistry 3rd Ed.	Cotton. F.A. and Wilkinson Groffrey
2. Inorganic Chemistry, 3rd Ed. 1983	Hukeavy, James E.
3. Physical Chemistry 3rd Ed.	Barrow, Gardon M.
4. Physical Chemistry 5th Ed.	Moore, Walter J.
5. University Chemistry	Mahan, B.H.
6. Introduction to Organic Chemistry 2nd Ed.	Streitwieser, A. Jr.
7. Mechanism & Structure in Organic Chemistry	Gould, Edwards
8. Organic Chemistry 2nd Ed.	Morrison, Robert Thornton & Boyd R.N.

14. COMPUTER SCIENCE

Total Marks—100

Candidates will be asked to attempt total five questions including one compulsory objective type question. They will attempt atleast one question from each section. Each question will carry 20 marks.

SECTION-A

Computer Architecture

Introduction to modern machine Architecture, Storage Hierarchy; Main/Virtual/Cache/Secondary Memory, CPU, ALU, Peripheral communication, Designing of Instruction set, Stored program concept, Introduction to parallel computing; SIMD/MIMD.

Operating System

Functions/Types of operating systems, Processes, Interprocess Communication/Synchronization/Co-ordination, Process Scheduling Policies, Virtual Memory Management Techniques; Paging/Segmentation, File Management Systems.

Computer Networks

LAN/WAN/MAN, Communication channels, Internetworking, Internet, Network layer structure, ISO Internet Protocol, OSI/TCP/IP reference model.

SECTION-B

Structured and Object Oriented Programming

Basics of C/C++ environment, memory concepts, operators, control structures, selection structures, Array & functions/methods, classes & data Abstractions, inheritance and polymorphism.

Data Structures and Algorithms

Pseudo language, Functions, Iteration, Recursion, Time/complexity Analysis, Stacks Queue, hashing, linked list, Searching; Sequential, Binary, Sorting Algorithms, Graphs Algorithms, Tree Algorithms, Trees, ADTs, Implementation using Structured/object oriented languages.

Software Engineering

Introduction to Software Engineering, Software life cycle, Software Design Methodologies: Structured/Object oriented, Software documentation and Management, Introduction to CASE tools.

SECTION-C

Data Base Management

Data Models, E-R Models, Relational Database concepts, SQL, Normalization, Database Design.

Web Programming

HTML, CGI, PERL, JAVA: Applet/Script, WWW, Web based interface Design.

Computer Graphics

Fundamentals of input, display and hard copy devices, scan conversion of geometric primitives, 2D and 3D geometric transformations, clipping and windowing, scene modeling and animation, algorithms for visible and surface determination.

SUGGESTED READINGS

The following books or their more recent equivalents, manuals, computer magazines and Journals, are recommended.

<i>Title</i>	<i>Author</i>
1. Computer Concepts, 3rd Edition, ITP, 1998	J.J. Parsond & D. Oja
2. Mathematical Structures for Computer Science, Freeman & Company	GL. Gersting
3. Java Script: The Definitive Guide, 2/e, O'Reilly, 1997	D. Flanagan
4. The HTML Sourcebook, Wiley, 1996	I.S. Graham
5. Computer Science: An overview, 6/e, Addison-Wesley, 1998	J. G. Brookshear
6. Java: An Object First Approach, Addison Wesley, 1998	F. Culwin
7. Web Page Scripting Techiques, Hayden Books, 1996	J. Bloomberg, J. Kawski J and P. Treffers
8. Computer Organization and Architecture: Designing for performance 4/e, Prentice-Hall 1997	W. Stallings
9. The Art of Computer Programming, Addison Wesley	D.E. Knuth
Vol. 1 Fundamental Algorithms, 3/e, 1997	
Vol. 3 Sorting and Searching, 2/e, 1998	
10. Algorithms and Data Structures, Prentice Hall, 1985	N. Wirth
11. Introduction to Database Systems, 6/e, Addison Wesley, 1996	C.J. Date
12. Software Engineering, 6/e 1998	Ian Sommerville
13. Software Engineering: A Practitioners Approach (4th edition), McGraw-Hill, 1997	R. Pressman
14. Computer Networks, 3rd Edition, Prentice Hall, 1996	S. Tanenbaum
15. Operating System Concepts, 4/e, Addison-Wesley, 1996	Silberschatz & J. Peterson,
16. Computer Graphics: Principles and Practice, 2/e, Addison-Wesley, 1996	Foley/Van Dam/Feiner/Hughes
17. Computer networks and Internet, Prentice Hall, 1998	D.E. Comer
18. C++: How to Program, Prentice-Hall, 1998	H.M. Deitel, P.J. Deital

19. Data Base Processing, Fundamentals-design implementation, 4th Edition, Macmillan Publishing Company, New York, 1993
20. Data and Computer Communication, 5th Edition, Prentice-Hall International, 1997

W. Stallings

15. CONSTITUTIONAL LAW

Total Marks—100

Constitutional Law—Principles of Constitutional Law with special reference to United Kingdom, United States of America, France, Former Union of Soviet Socialist Republic, Pakistan and India.

CONSTITUTIONAL LAW

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. Constitution of Pakistan	Monir, M.
2. Constitutional Development of Pakistan	Choudhry, A.G.
3. Governments and Parties in Continental Europe	Lowell, A.L.
4. Introduction to the study of the Law of the Constitution	Dacey

16. ECONOMICS

Total Marks—200

PAPER—I

(Marks—100)

1. **Micro Economics**

Consumer behaviour, Determination of market demand and supply, theory of the Firm, Producer's equilibrium, Pricing of the factors of production.

2. **Macro Economics**

Basic Economic Concepts, National Income Accounting, Consumption Function and Multiplier, Determination of equilibrium level of income and output, Inflation.

3. **Money and Banking**

Functions of Money, Quantity Theory of Money, The Fisher and Cambridge Formulations, Systems of note issue, Credit Creation, Functions of Central Banks, Instruments of credit control, Theory of Liquidity Preference.

4. **Public Financing**

Government expenditure, Sources of Government Revenue, Types of taxes, Incidence of different taxes, Public Debt, Objectives, methods of repayment, Deficit financing.

5. **International Trade**

Theory of Comparative costs, Arguments for Protection, Balance of payments, International liquidity, International Money and Banking Institutions.

ECONOMICS

PAPER—II

(Marks—100)

PAKISTAN'S ECONOMY

1. Definition and measurement of Development, Characteristics of under development, Rethinking on the concept of Development : Growth vs. Redistributive justice, Absolute and Relative Poverty, Basic Needs Approach.

2. Planning Experience of Pakistan : A critical evaluation of the strategy of economic planning.

3. Agricultural Development in Pakistan : Changes in Agricultural Policies over plan periods, Major Monetary and Fiscal measures to promote Agricultural development, Green Revolution Strategy and its implications for growth and redistribution, Land Reforms and changes in the Tenure System 1950—1980, Cooperative Farming.

4. Industrial Development in Pakistan : Early industrialisation strategy, Creation of Financial and Development Institutions, Major monetary and fiscal measures to promote industrial development, Changing role of public sector over the plan periods, Evaluation of Nationalisation Policy, Concentration of industrial income and wealth.

5. Role of Foreign Trade and Aid in economic development : Trends in Pakistan's Balance of Payments, Changes in direction of trade, Trends in Pakistan's major exports and imports, Causes of significant changes in the trends, the role of migration and remittances in Pakistan's economy, costs and benefits of Foreign Aid.

6. Privatization, denationalisation and deregulation, conceptual and operational aspects. International comparisons.

ECONOMICS

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. A Text-book of Economics Theory	Stonier & Hague
2. Economic Development in the Third World	Todaro, M.P.
3. Under Development and Agrarian Structure in Pakistan	Khan, Mahmood Hassan
4. Economic of Islam	Ahmed, S.M.
5. Economics	Paul A. Samuleson
6. Factors in Economic Development	Cairncross, A.K.
7. Foreign Aid Theory and Practice in Southern Asia	Wolf, Jr. DC
8. Government Finance—An Economic Analysis	Due John, F.
9. Introduction to International Economics	Snider, D.A.
10. Microeconomic Theory	Ferguson, C.E. & Gould, J.P.
11. Modern Microeconomics	Koutsoyiannis, A.
12. Macroeconomics	Rudigar Dorubush & Stanley Fisher
13. Population Problems	Theompson & Lewis
14. Studies in Economic Development with Special Reference to Pakistan	Ghouse, A.
15. The General Theory of Employment, Interest and Money	Keynes, J.M.
16. The Economics of Developing Countries	Hynit, H.

Note.—The candidates should be familiar with:—

Pakistan Economic Survey, Government of Pakistan, Five Year Plans, Government of Pakistan, World Development Reports.

17. ENGLISH LITERATURE

Total Marks—200

PAPER—I

Marks—100

Detailed study of a literary age (19th century)

The paper will cover the study of English literature from 1798 to 1900 with special reference to the works of W. Blake, Wordsworth, Shelley, Keats, Byron, Charles Lamb, Dickens, Tennyson, Robert Browning, Hardy, George Eliot, J.S. Mill, Ruskin and Oscar Wilde.

Evidence of first-hand reading will be required. The paper will be designed to test not only the candidates knowledge of the prescribed authors works but also their understanding of the main literary trends during the period. Questions having a bearing on the social and cultural back-ground of the Period also be included.

ENGLISH LITERATURE

PAPER—II

(Marks—100)

The paper will require first hand knowledge of the text prescribed as well as general awareness of the authors major works, and will be designed to test the candidates critical ability.

- | | | | |
|-----|-------------------|----|---|
| 1. | Shakespeare | .. | Hamlet |
| 2. | Swift | .. | Gullivers Travels |
| 3. | Jane Austen | .. | Pride and Prejudice |
| 4. | Shaw | .. | Pygmalion |
| 5. | Yeats | .. | The Second Coming, sailing to Byzantium, Among School Children |
| 6. | T.S. Eliot | .. | The Waste Land |
| 7. | D.H. Lawrence | .. | Sons & Lovers |
| 8. | Earnest Hemingway | .. | Old Man & The Sea |
| 9. | Samuel Backet | .. | Waiting for Godot |
| 10. | Robert Frost | .. | The Pasture, Revelation, The Tuft of Flowers, After Apple—Picking, Mending Wall, The Road not Taken, And Old Man's Winter Night, Birches, Fire and Ice, Stopping by Woods, West-running brook, Desert Places. |

ENGLISH LITERATURE

SUGGESTED READINGS

- | <i>Title</i> | <i>Author</i> |
|---|---------------------------------|
| 1. After Strange Gods | Eliot, T.S. |
| 2. A Guide to English Literature | Ford, B. Pelican Series 7 Vols. |
| 3. Common Pursuit | Leavis, F.R. |
| 4. D. H. Lawrence | Leavis, F.R. |
| 5. Dickens, the Novelist | Leavis, F.R. |
| 6. Gulliver and the Gentle Reader | Rowson, C.J. |
| 7. George Eliot : The Critical Heritage | Caroll, D. (ed) |
| 8. History of English Literature | Legouis and Cazamian |
| 9. History of English Literature | Hudson |
| 10. Hardy, the Novelist | Cecil, D. |
| 11. Hardy : The Critical Heritage | Cox, R.G. (ed) |
| 12. In Memorium in Essay Ancient and Modern | Eliot, T.S. |
| 13. Lawrence | Kermode, F. |
| 14. Romantic Poetry | Abrahams, M.H. |
| 15. Robert Browning | Amstrange, J. (ed) |
| 16. Swift | Steel, P. Preacher and Jester |

- | | | |
|-----|--|-------------------|
| 17. | Shakespeare's Later Comedies; An anthology of Modern Criticism | Palmer, D.J. (ed) |
| 18. | The world of Swift | Vickers, B. (ed) |
| 19. | The Art of Swift | Probyn, C.T. |
| 20. | The Dark Sun, a Study of Lawrence | Hough, Graham |
| 21. | The Love Ethics of Lawrence | Silk, M. |
| 22. | The Lonely Tower Studies in the Poetry of Yeats | Henna, T.R. |
| 23. | The Last Romantics | Hough, G |
| 24. | The Wheel of Fire | Knight, G Willson |
| 25. | The 19th Century Back Ground | Basil Willey |
| 26. | The Great Tradition | Leavis, F.R. |
| 27. | The Odes of Keats | Holloway, T. Camb |
| 28. | Tennyson | Ricks, C. |
| 29. | Tennyson : The Critical Heritage | Jump, J.D. |
| 30. | The Poetry of Browning | Drew, P. |
| 31. | Use of Poetry & Use of Criticism | Eliot, T.S. |
| 32. | 20th Century Views | Abrahams, M.H. |
| 33. | The Romantics Image | Kermode, F. |

18. EUROPEAN HISTORY

Total Marks—200

(1789—1914)

PAPER—I

(Marks—100)

I. French Revolution

Background, Old Regime, Philosophers, Estate General, National Assembly, England's Reaction, Parties in the Legislative Assembly. The fall of Monarchy, European coalition against France and the War, the second and the third partition of Poland, the Terror and the end of Terror, France and Europe 1793—95.

II. Napoleon Bonaparte

The rise of Napoleon to power, Napoleon as Emperor, statesman and warrior, Napoleon and Europe, the continental system, the fall of Napoleon, England's role in the catastrophe of Napoleon.

III. Vienna Settlement and concept of Europe

Treaty of Chaumont, First treaty of Paris, Second treaty of Paris, Treaty of Vienna, Holy Alliance. Quadruple Alliance, Congress System and failure of congress system, British Leadership.

IV. England 1814 to 1833

Effects of War period, constitutional development, progress in Industry, Agriculture and Culture.

V. Europe 1815 to 1848

The forces of continuity and reaction, Metternich system, the force of change and progress, Nationalism, Democracy, Liberalism, Socialism, Revolution in France 1830, Revolution in France in 1848 and the sequence of revolutions in Europe.

VI. The Eastern Question 1820 to 1878

Background, the Greek Revolt 1820 to Independence 1832, the Crimean War 1853 to 1856 and Peace Treaty of Paris, Pan Slavism, The Russo-Turkish War 1877, the treaty of San Stefano. The Congress and the treaty of Berlin 1878.

VII. Risorgimento and the Union of Italy

Revolutionary movements in Italy, Mazzini, Cavour and other architects of Italian unification, Napoleon III and Italian Unity, Foreign Policy of Italy after unification to 1914.

VIII. Unification of Germany

Background, Napoleon and Germany, Rise of Prussia, Zollverein, Revolution of 1848 and Germany, Rise of Bismark and his role as architect of German Unity, Wars with Denmark, Austria and France, Domestic and foreign policy of Bismark from 1870 to 1890. Foreign Policy of Germany from 1890 to 1914.

IX. The growth of Colonisation and of Overseas Empire 1815—92

Different forms of colonisation, British Colonial policy and expansion, The French Colonial Policy and expansion, The French in North Africa, Suez Canal, Anglo French Control in Egypt, Russia in the Caucasus and Turkistan, Anglo-Russian Results of Colonial development.

X. England 1893 to 1910

Social and constitutional reforms, material progress, social thought and culture.

XI. Road to the First World War

Alliances and counter alliances, Drickaiserbund, Austro German alliance 1879, Triple alliance 1882. The formation of Dualalliance 1891-93, Anglo-Japanese alliance, French British and Russo British Entente, their crises—Algeiras, Bosnia, Agadir, German Navy, Baghdad Railway, Balkan crises. The cause of First World War.

EUROPEAN HISTORY

(1914—1960)

PAPER—II

(Marks—100)

I. First World War

Events—U.S.A.'s entry into the War, Wilson's 14 points, the choice of the Turks, War in the Middle East Britain's Middle East Policy during the War, Balfour Declaration, Defeat of Germany, Austria and Turkey, effects of the War.

II. Peace Treaties

The Treaty of Versailles, The big four, The basis of the Treaty, The Treaty of Versailles and the U.S. The treaties of St. Germain and Trianon, The treaty of Serres, the Treaty of Lausanne.

III. The League of Nations

The Covenant, the League between the two Wars, causes of failure.

IV. Marxism and the Soviet Union

The Russian Revolution 1917, Lenin, The Third International 1919, Civil War in Russia, Trotsky. The Constitution of the U.S.S.R. Stalin, First Five year Plan, Purges, The Russian foreign policy between the two Wars.

V. Italy and Fascism

Effects of the War on Italy, Mussolini's rise to power, Fascist party and Principles, Italy's foreign policy between the two Wars.

VI. Germany and Nazism

Germany from the Versailles Treaty to Hitler, Origins of Nazism, 'Mein Kampf', Hitler's rise to power, Domestic Policy of Hitler, the Totalitarian State, Hitler's foreign policy.

VII. France between the two Wars

Defects of the French Constitution, collapse of the Third Republic, Foreign Policy of France between the Wars.

VIII. England between the two Wars

Disadvantages of Parliamentary Government, Cabinet Government in England. Depression of 1929 and England, Stability of British Common Wealth, Foreign Policy of England between the Wars.

IX. The Second World War

Causes, the events, Atlantic Charter, Tehran, Yalta and Potsdam conferences, the allied victory, effect of the war.

X. The U.N.O.

Origin, the Charter of the U.N.O., U.N.O. as peace keeping force.

XI. The Political State of Europe 1945—50

The new Balance of Power in Europe, Russian domination of Eastern Europe, Decisions on Germany's Future, Economic Collapse of Western Europe and recovery, Marshall Plan, Cold War, The Blockade of Berlin, N.A.T.O.

XII. The Rise of Russia as a Great power

The effects of the War on Russia, the fruit of victory, Warsaw Pact, Russia's efforts to spread its influence in Eastern Europe, Asia, Africa and Latin-America 1945 to 1960.

XIII. France after the Second World War

Fourth French Republic, French Colonial Policy after Second World War, Algeria, Indochina, De Gaulle's domestic and foreign policy.

XIV. England after the Second World War

The rise of Labour Party, Economic Policy of the Labour Party's Government, England's Colonial Policy after the Second World War, Decline of England as World Power, British Common Wealth, England and the Common Market, England and the Middle East 1945 to 1960.

XV. Europe and Common Market

The origin and evolution of the European Common Market upto 1960.

EUROPEAN HISTORY

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. An Intellectual History of Modern Europe	Stromberg, R.N.
2. A History of Modern World	Palmer, R.
3. A History of Modern France 1871—1962	Cobban, Alfred.
4. Europe Since 1815	Craig, G.A.
5. Europe in the Nineteenth Century 1789, 1905	Agatha Ramm.
6. Europe in the Twentieth Century 1905-1970	Agatha Ramm.
7. Europe Since Napoleon	Thompson, D.
8. Europe Since 1870	Toll, James,
9. International Relations Between the Two World Wars	Carr, E.H.
10. Modern Europe in the Making from the French Revolution to the Common Market	Fasal, G.
11. The Age of Progress	Colins, Irene.
12. The Norton History of Modern Europe	Gilbert, F.
13. The European Powers and the German Question 1948—1971	Mosse, W.E.
14. The History of Modern Europe 1889—1917	Nicolson, H.
15. The Struggle for Mastery in Europe 1848—1918	Taylor, A.J.P.

16.	The First World War.	Taylor A.J.P.
17.	The Origins of the Second World War	Taylor, A.J.P.
18.	Western Civilization 2 Volumes	Burns, E.M.
19.	The Eve of European Era 1890 to the Present	Gilbirt, Felix
20.	The Age of Revolution and Reaction 1789—1850	Breving, Charles
21.	The Age of Nationalism and 1850—1890	Rich, Norman

19. FORESTRY

Total Marks—100

Forestry :

- (i) Ecology and General Silviculture.
- (ii) Forest Statistics, Mensuration and Research Methods.
- (iii) Forest Management and Economics.
- (iv) Water Shed Management.
- (v) Range Management
- (vi) Forests surveying and Engineering.
- (vii) Forest Policy, Law and Protection.
- (viii). Forest Biology, Wildlife and Natural Park Management.

FORESTRY

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. Manual of Silviculture for Pakistan	Champion, Seth & Khattak, G.M.
2. Forest Types of Pakistan	—Do—
3. Principles of Silviculture	Daniel, T.W. Helms & Baker
4. Plant & Environment	Daubenmire, R.
5. Elementary Forest Mensuration	Jerram, M.R.K.
6. Natural Resources Measurement	Avery, T.E.
7. Forest Management	Khattak, G.M.
8. Fundamental of Forestry Economics	Duerr, W.A.
9. Surveying and Levelling	Kanetkar, T.P. and Kulkarni
10. Rasul Manual for Subordinate Engineers, Surveying Part-I	Anon
11. Material of Construction	Syed, Z.H.
12. Forest Engineering (Roads & Bridges)	Harrison, J.L.
13. The Pakistan Forest Act, 1927	
14. Principles of Forest Policy	Worrell
15. Forest Protection	Hawley & Stickle
16. Forests & Forestry in Pakistan	Sheikh, M.I. & Hafeez, M.
17. Range Management	Stoodart, Smith and Box
18. Vegetation & Watershed Management	Colman, E.A.

20. GEOGRAPHY

Total Marks—200

PAPER—I

PHYSICAL AND GENERAL GEOGRAPHY

(Marks—100)

1. Elements of Weather and Climate

Insolation and Atmospheric Temperature. Global Radiation and Heat Balance. Atmospheric Pressure and Winds. Humidity and Precipitation. Air Masses, Fronts and Atmospheric Disturbances. Classification of Climate and Climatic Regions.

2. Landforms

Major landforms, Rocks : origin, formation and classification, Internal Structure of the Earth, Earth quakes and Volcancity, Weathering, Mass Wasting, Erosion and Deposition, Cycle of Erosion. Landforms produced by Underground and Ground Water, Wind and Glaciers.

3. Oceans

Continental Margins and the Sea Floor. Distribution of Temperature and Salinity. Movements of the Ocean Water : Waves, Currents and Tides.

4. Study of Maps

Types of maps : Topographical Maps, Aerial Photographs, Weather Maps. Map Projections : classification and choice of projections, Merits and Demerits of Cylindrical, Conical and Zenithal Projections. Diagrams, graphs and Distribution Maps based on Statistical Data.

PAPER—II

HUMAN, ECONOMIC AND REGIONAL GEOGRAPHY

(Marks—100)

1. Human Geography

Man and his Habitat : Concepts of Environmentalism and Possibilism. World Population-distribution, structure and growth (natural increase and migration). World, Society and Culture : races, languages and religions, levels of education and welfare. Settlements—rural and urban, characteristics and problems of urban places. Population/Resource Regions.

2. Economic Geography

Economic Activities : primary, secondary and tertiary. Primary Activity : agricultural systems ; subsistence, intensive, extensive, mechanized and mixed farming. Production, Distribution and Trade of Major Cereal and Non-Cereal Crops. Forests and Fisheries. Power Resources. Major Industries : iron and steel, textiles and chemical industries. Politico-economic Relationship between the More Developed and Less Developed countries.

3. Regional Geography

Economic and Social Regions of the world. Regional Geography of South Asia with special reference to Pakistan under the following heads : Resource base (Human, Physical and Economic) Transport, Trade and International Relations.

GEOGRAPHY

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. Physical Geography	Lake, P.
2. Physical Geography	Strahler, A.N.
3. An Introduction to Climate	Trewartha, G.T.
4. An Introduction to Map work and Practical	Bygott J.
5. Maps and Diagrams	Monkhouse, F.J. and Wilkinson, H.R.
6. Human Geography	Deblj, H.J.

7. Human Geography	Bradford, M.G. & Kent, W.A.
8. Population Geography	Jones, H.R.
9. Population Geography	Clarke, J.I.
10. Economic Geography	Pounds, N.
11. South Asia	Jonson, B.L.C.
12. An Introduction to South Asia	Farmer, B.H.
13. A Geography of Pakistan	Kureshy, K.U.

21. GEOLOGY

Total Marks—200

PAPER—I

(Marks—100)

1. General Geology : Earth as a planet, its origin and age. Internal structure of the earth and lithospheric plates. Internal and external geological processes such as earth-quakes, volcanism, weathering, erosion and deposition. Geomorphologic cycles.

2. Structural Geology : Primary sedimentary structures. Mechanical properties of rocks. Description and classification of secondary structures. Structures in Metamorphic rocks. Orogeny and geosynclines in plate tectonic framework. Major tectonic features of the earth. Geodynamics of Pakistan.

3. Palaeontology : Fossils and their preservation. Morphology, evolution and geologic distribution of major invertebrate phyla. Micropalaeontology of Foraminifera. Vertebrate and plant fossils.

4. Stratigraphy : Stratigraphic nomenclature, and stratigraphic codes. Principles of correlation. Sedimentary basins of Pakistan and detailed stratigraphy of type sections.

5. Mineralogy : Chemical composition of the earth crust. Minerals, their physical and chemical properties. Space lattice, symmetry classes and crystal systems. Crystal optics. Atomic structure of crystals and X-Ray diffraction. Detailed study of important rock forming minerals.

6. Petrology : Origin and evolution of magma. Binary and Ternary silicate systems. Description of important plutonic and volcanic associations. Sedimentary environments and processes. Petrography of major types of sedimentary rocks. Metamorphism, metamorphic zones and facies. Description of principle types of metamorphic rocks. Metamorphism and magmatism in relation to plate tectonics.

GEOLOGY

PAPER—II

(Marks—100)

1. Economic Geology : Processes of formation of mineral deposits. Detailed study of metallic and non-metallic mineral deposits of Pakistan. Mineral based industries. Metallogeny of Pakistan.

2. Energy Resources : Constitution and kinds of coal. Geology of Pakistan coal fields. Origin, migration and accumulation of natural hydrocarbons. Oil well drilling and drilling muds. Oil and gas fields of Pakistan. Origin and occurrence of radioactive minerals. Pakistan resource of atomic energy minerals. Geothermal energy; recovery and uses.

3. Engineering Geology : Geological factors in the construction of civil engineering projects. Geology of Dam Sites of Pakistan. Landslides and stability of slopes. Open and subsurface excavations. Construction materials and building stones. Site investigation and foundation analysis.

4. Hydrogeology : Groundwater occurrence and types of aquifers. Movement of groundwater. Salinity and waterlogging. Water resources of Pakistan.

5. Exploration Geology : Geological mapping and tradition prospecting methods. Photogeology and remote sensing mineral exploration. Dispersion of trace elements and geochemical surveys. Geophysical techniques for prospecting of solid minerals, oil and water.

GEOLOGY

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. The Evolving Earth	Sawkins & others
2. Physical Geology	Skinner & Porter
3. Structural Geology	Park
4. Geodynamics of Pakistan	Farah & Dejong
5. Invertebrate Palaeontology	Moore, Laliker & Fisher
6. Stratigraphy and Sedimentation	Krumbein & Sloss
7. Stratigraphy of Pakistan	Ibrahim Shah
8. Mineralogy	Berry & Mason
9. Igneous and Metamorphic Petrology	Turner & Verhoogen
10. Sedimentary Rocks	Pettjohn
11. Mineral Directory of Pakistan	Zaki Ahmed
12. Industrial Rocks and Minerals	Lefond
13. Geology of Petroleum	Levenson
14. Energy Resources	Brown & Skipsey
15. Engineering Geology	Beavis
16. Groundwater Hydrology	Todd
17. Geological Prospecting	Kreiter
18. Techniques in Mineral exploration	Reedman

22. HISTORY OF PAKISTAN AND INDIA

Total Marks—200

PAPER—I

(Marks—100)

712—1857 (Excluding arrival of European nations, decline and fall of Muslim Rule)

Arrival of the Muslims in the sub-continent, foundation of Muslim Rule—administrative system and reforms under the Sultans and the Mughals.

Structure of the Muslim society.

Industry, trade and commerce under the Muslim patronage, the Army, Financial administration, Zakat, Ushr, Kharaj etc.

Administration of Justice—Sufis and Ulema—the Madrassahs and Maktabas—Auqaf—

Art and architecture, literature, sports, dress—Muslim contribution to scientific knowledge—Policy of the Muslim rules towards non-Muslims. The spirit and legacy of Muslim civilization.

PAPER—II

(Marks—100)

Part A : 1857—1947

Arrival of European nations—decline and fall of Muslim Rule, contributions of Shah Wali Ullah, Syed Ahmed Shaheed and Sir Syed Ahmed Khan towards regeneration of the Muslim—Hindu reform movements and anti-Muslim role of Hindu leaders.

Constitutional reforms of the British Government and growth of the Political Parties—Indian National Congress, All India Muslim league—

Partition of Bengal, Simla Deputation, Role of Nawab Mohsin-ul-Mulk, Nawab Viqar-ul-Mulk.

Syed Ameer Ali, the Agha Khan and other Muslim leaders, Lucknow pact; Khilafat movement. Contribution of Maulana Muhammad Ali, Allama Iqbal, Quaid-i-Azam Muhammad Ali Jinnah for Muslim uplift and welfare.

Nehru report, Quaid-i-Azam's Fourteen Points, Allama Iqbal's Allahabad Address 1930, Round Table Conference. The Congress role in the provinces, Lahore Resolution 1940, various missions and plans for the partition of the sub-continent.

Quaid-i-Azam as an organizer of the Muslim League
Muslim leader and maker of Pakistan.

PAKISTAN SINCE 1947

Part B

Constitution making in Pakistan—various attempts at constitution making. Difficulties in establishing a parliamentary democracy, imposition of various Martial Laws, nature of Pakistan's economy, development plans. Role of foreign aid.

Separation of East Pakistan, causes and effect : Pakistan and the world—major powers, Islamic world, relations with India.

Social and intellectual trends after 1947. Contribution of Quaid-i-Azam as First Governor General and Liaquat Ali Khan as first Prime Minister.

HISTORY OF PAKISTAN AND INDIA

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. Constitutional Development in Pakistan	G.W. Choudhry.
2. Constitutional History of India	Keith A.B.
3. Early India & Pakistan	Wheeler Mortimer
4. Five Thousand Year of Pakistan	Wheeler R.E.M.
5. Government & Politics in Pakistan	Ahmad Mushtaq.
6. Pakistan & India	G.W. Choudhry.
7. Political System in Pakistan	Khalid Bin Saeed.
8. Pakistan the Formative Phase	Khalid Bin Saeed.
9. Studies in Islamic culture in Indian Environment	Aziz Ahmed.
10. The Making of Pakistan	Richard Symond.
11. Political Parties in Pakistan Vol. I & II	Afzal, Rafique.
12. The Great Divide : Britain, India and Pakistan	Hodson, H.V.
13. The Pakistan Experience—State and Religion	Khan, Asghar.
14. Pakistan in Transition	Wriggins, W.H. (ed)
15. Muslim Rule in Indio-Pak subcontinent	Ishwari Prasad
16. Two Nation theory	Shafiq Ali Khan
17. The British Raj in India	S. M. Burke Salim Al-Din Qureshi

23. HISTORY OF THE U.S.A.

Total Marks—100

History of the U.S.A.—Facts of political history from the early settlers to the present day. Questions will also be asked on economic and constitutional development of the U.S.A.

Note.—Credit will be given not only for precise presentation of facts but also for sound critical judgement.

HISTORY OF THE U.S.A.

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. America at 1750 A Social Portrait	Hofstadter, Richard
2. A Pocket History of the United States	Nevnis, Allan and Cammager, Henry Sterl
3. American Foreign Policy Since World War-II.	Spainer, W.
4. Abolitionism A New Perspective.	Sorin, Gerald.
5. American Individualism : A Study of its Origin and Development, Pakistan Journal of American Studies.	Malik, Iftikhar H.
6. Benjamin Franklin The Father of the Yankees "Pakistan Journal of American Studies".	Malik, Iftikhar H.
7. Encyclopedia of American History	Morris, Richard & Cammager, H.S. eds.
8. Evolution of Muslim Community in the U.S. Journal of Research Society of Pakistan No. 2.	Malik, Iftikhar H.
9. Family Encyclopedia of American History	—
10. Iran, Turkey and Afghanistan A Political Chronology.	Ziring, Lawrence.
11. Main Currents in American History.	Parrington, Vernon.
12. Paved with Good Intentions The American Experience and Iran.	Rubin, Barry.
13. The Americans : The Colonial Experience The Americans the National Experience	Boorstin, David J. —do—
14. The United States	Hofstadter, Richard et. al.
15. The American Constitution	Pritchett, Herman.
16. The United States and Pakistan	Tahir-Khali, Shirin.
17. United States Pakistan Relation, "U.S. Pakistan Relation : A Historical Perspective on Cross-Cultural Dialogue", in Rais A. Khan ed.	Malik, Iftikhar H.
18. U.S. China Relations : A Study in Imperialism "Strategic Studies".	Malik, Iftikhar H.
19. White Man's Burden : Historical Origins of Racism in the United States	Jordan, Winthrop D.
20. Out of Our Past : The Forces That Shaped Modern America	Degler, Carl N.
21. The American Constitution : Its Origins and Development.	Kelly, Alfred H.
22. Making America : The Society and Culture of the United States	Luedtke, Luther, S.

24. INTERNATIONAL LAW

Total Marks—100

International Law : Public International Law, Important cases decided by the permanent court of International Justice, the International Court of Justice and U.N.O. Law of the Sea.

INTERNATIONAL LAW

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. Public International Law	Brownlie
2. Territorial Waters and Maritime Zones Act., 1976	
3. U.N. Convention on Law of the Sea—1984	

25. INTERNATIONAL RELATIONS

Total Marks—100

Part—A

1. The modern state system—history, basic features, evolving forms.
2. International Relations as a field of study, Basic Approaches—Power, Balance of Power, Imperialism, Nationalism.
3. Interaction between states—diplomacy, International Law, international economic and trade linkages—pressures in world politics.

Part—B

1. Evolution of the International System since 1815 (Congress of Vienna) Historical Overview.
2. World War I, II, Decolonization, Rise of the Third World Alliance System (NATO, SEATO, CENTO, WARSAW PACT) Peaceful coexistence : Non-Aligned Movement Theories of Peace and Security in Nuclear Age (Deterrence, Limited war, Crisis Management etc). Detente.

Part—C

1. Foreign Policies of the Superpowers, major powers (USA, USSR, China) with special reference to South Asia (India, Pakistan, etc.).
2. Issues in global Politics.
 - (a) Nuclear Proliferation.
 - (b) Superpower rivalry in the Indian Ocean.
 - (c) International economic order.
 - (d) Regional Security issues and crises (Afghanistan Crises, Iran—Iraq war, Palestine problem, Apartheid and South Africa, Namibia, Polish crises, Eurocommunism, Central American crises etc.)
 - (e) Arms Control and disarmament.

INTERNATIONAL RELATIONS

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. International Politics	K.J. Holsti
2. Politics Among Nations	Hans Morgenthau
3. World Politics : An Introduction	James N. Rosenau
4. An Introduction to International Politics : Power and Justice	Theodor Contobius and Thomas Wolfe
5. Contending Theories of International Relations	Tames Dougherty
6. Issues in Global Politics	Gavin Boyd
7. World Politics Since 1945	Peter Caluocorassi
8. International Relations : Peace or War	Richard Rosecrance
9. Relations of Nations	Frederick Hartman

10. Indian Ocean and the Superpowers : Economic, Political and Strategic perspectives	Rasul Bux Rais
11. Sanctuary and War	Pervaiz Iqbal Cheema
12. Contemporary Strategy : Theories and Policies	J. Baylis, K. Booth, P. Willimas, J. Garnet

26. ISLAMIC HISTORY AND CULTURE

Total Marks—200

PAPER—I

(Marks—100)

I. Humanity at the dawn of Islam

A brief survey of major world civilizations, with special emphasis on their intellectual, humanistic and special institutions—their impact on world history.

II. Advent of Islam

Life and teachings of the Holy Prophet. Foundations of a new and revolutionary world order : Institutions of Islam; Political, Social, Economic and Legal Structure of the Islamic polity.

The Quran : Emphasis on the study of Nature and Research, Changes brought by Islam in human thinking and behaviour.

III. Foundation of Muslim State

Early conquests of the Khulafa-i-Rashidin ; Administrative and legal structure of the State. Political and Ideological differences and the emergence of the Ummayyads; Expansion and consolidation of the Empire.

IV. The Grandeur of Islam

Philosophical, scientific and Literary Progress of the Muslims during the Abbasid period.

V. The Ottoman Caliphate

Turkish march towards Europe. Political structure of the Turkish Empire, salient features of their administration, decline and disintegration.

PAPER—II

(Marks—100)

I. Islam in Africa and Spain

II. Muslim achievements in Natural and Social Sciences; Schools of Baghdad, Spain and Iran, Muslim contribution to History, Science, Medicine and other branches of human civilization.

III. Muslim Arts

Muslims' contribution in architecture, music, painting, handicrafts, pottery, calligraphy, etc.

IV. Renaissance and Reformation

Origin of this intellectual revolution ; Contribution of Muslim Universities and Seminaries in Spain and Baghdad ;

Dissemination of Muslim learnings in the West.

V. Modern World

Impact of Islam on Western thought, social institutions and economic policies.

ISLAMIC HISTORY AND CULTURE

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. Discovering Islam—Making Sense of Muslim History and Society	Ahmad, Akbar S.

2. Islam : Ideology and Leading Issues	Ali, Anwar.
3. The Spirit of Islam	Ali, S. Ameer
4. Aspects of Islamic Civilization : The Muslim World Depicted Through Its Literature	Arberry, A.J.
5. The Preaching of Islam—A History of the Muslim Faith	Arnold, T.W.
6. The History of Philosophy in Islam	Boer, T.J.De.
7. History of the Islamic Peoples	Brockelmann, Carl (ed)
8. Spanish Islam	Dozy, R.
9. Studies on the Civilization of Islam	Gibb, Hamilton A.R.
10. The Religion of Islam, Vol. I & II	Glawash, Ahmad A.
11. Classical Islam : A History 600—1258	Grunebaum, G.E. Voni
12. Cambridge History of India	Holts, P.M. and Lewis, Bernard.
13. Islam Resurgent : The Islamic World Today	Irving, T.B.
14. Islam : From Prophet Mohammad to the Capture of Constantinople.	Lewis, Bernard
15. Islam in History.	Munir, Muhammad.
16. Islam and The Modern World	Nadawi, Abu Hasan Ali.
17. The Making of the Past : the Spread of Islam	Rogers, Michael
18. A History of Medieval Islam	Saunders, J.J.
19. Introduction to Islamic Civilization	Savory, R.M. (ed)
20. The Legacy of Islam	Schacht, Joseph & Bosworth, C.E. (eds)
21. Islamic History—A New Interpretation AD 750—1055	Shaban, M.A.
22. A History of Muslim Philosophy	Sharif, M.M.
23. Muslim Thought : Its Origin and Achievements	Mohd. Hanif Nadvi
24. Studies in Islamic History	Siddiqi, Amir Hassan.

27. JOURNALISM (MASS COMMUNICATION)

Total Marks—100

Note: Candidate will be asked to attempt total five questions including one compulsory (objective type) question. They will attempt at least two questions from each Section. Short note within the question (without choice) can also be given.

SECTION-A

Concept and process of communication : Source, Message, Channel, Destination, Encoding, Decoding, Noise, Feedback Oral vs Written Communication. Two step flow of Communication. Role of Opinion Leader.

2. Information and Journalism—Functions : Scanning the Horizon and reporting back.

- (a) News function

- (b) Educational Function
- (c) Opinion for motives
- (d) Entertainment function

3. Pakistan Press, An overview of the evolution of the Muslim Press in South Asia before 1947 and development of the Pakistan Press since 1947, its social economic aspect; Trends and Characteristics; Problems and Prospects.

4. Mass Media : Components, functions and effects, Mass Media in Pakistan : Size and dispersion; Role in national development, Prospects and problems.

SECTION-B

5. News. Principles and techniques of News writing. Editorial : Definition, ingredients, Types and functions of writing of Editorials.

6. Public Relations : Definition, Purpose and scope, Ethics, PR in Pakistan ; Duties of PRO; PR Procedures and Processes.

7. Magazine Journalism : Mag-Journalism in Pakistan. Types, Functioning Purpose its social aspects and scope.

8. Press Release, Press Note, and Press Communication : Definitions and Basic ingredients. Writing of Press Release, Press Note and Press Communiqué.

9. Advertising : Definition, functions, types and purpose. Its social and economic aspects, principles of successful advertising.

10. Press Laws : Press Laws in Pakistan (gradual developments) and the 'Right to Know' concepts of press freedom and responsibility, Ethics of Journalism.

JOURNALISM

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. Advertising Operations and Management	Beinton
2. Contemporary Public Relations	Garkan Gene & Scott.
3. Communication in Power	Herbert Brucver.
4. Exploring Journalism	Wosley and Campbell.
5. Editor and Editorial Writing	A Gayle Waldrop.
6. Hand Book of Public Relations	Stephenson Howard.
7. Journalism in Pakistan	Dr. Abdus Slam Khurshid
8. Mass Communication	Wilbur Schram.
9. Newspaper Organization and Management	Rucker
10. Practical Newspapers Reporting	Geoffrey Haris & David Spark.
11. Process and Effects of Mass Communication	Wilbur Schram.
12. Radio & T.V. Writing	Max Wylie
13. تعمیر و تعمیرات	سیدتی
14. سوانح پاکستانیوں کی	ڈاکٹر محمد سعید اختر
15. نیا دور	ڈاکٹر سعید علی خان
16. نیا سوانح	ڈاکٹر سعید اختر
17. نیا دور	ڈاکٹر سعید علی خان

28. LAW

Total Marks—200

PAPER—I

(Marks—100)

Civil Procedure Code, Contract Act and Law of Torts.

PAPER—II

(Marks—100)

Qanun-e-Shahadat, 1984. Code of Criminal Procedure and Penal Code.

LAW**SUGGESTED READINGS**

<i>Title</i>	<i>Author</i>
1. Criminal Procedure Code	Shaukat Mahmud
2. Law of Torts	Choudhry, A.M.
3. Pakistan Penal Code	Shaukat Mahmud
4. Qanun-e-Shahadat	1984
5. The Law of Contract	Dr. M.A. Mannan
6. The Civil Procedure Code	Aamir Raza

29. MERCANTILE LAW

Total Marks—100

Mercantile Law.—The main principles of law relating to Agreements; Contracts ; Bailment; Pledge; Sale of Goods Act; Agency; Partnership Act; Indemnity and Guarantee, Negotiable Instruments Act; Companies Ordinance, 1984. Contract Act, Life, Fire and Marine Insurances, Law of Arbitration.

MERCANTILE LAW**SUGGESTED READINGS**

<i>Title</i>	<i>Author</i>
1. A Hand-Book of Company Law	Choudhry, A.M.
2. A Manual and Mercantile Law	Hashmi, I.R. & Latif Ahmed
3. Contract Act	Mannan, M.A.
4. Insurance Law	Farani
5. Negotiable Instruments Act	Khergermvala
6. Sales of Goods and Partnership Acts	Pollock and Mulla
7. Arbitration Act., 1940	

30. MUSLIM LAW AND JURISPRUDENCE

Total Marks—100

- The Islamic Law as Administered in Pakistan.
- Principles of the Islamic Jurisprudence.

Candidates will be expected to show some familiarity with the original sources.

MUSLIM LAW AND JURISPRUDENCE**SUGGESTED READINGS**

<i>Title</i>	<i>Author</i>
1. Principles of Mohammadan Law	Mulla, D.F.

- The Principles of Mohammadan Jurisprudence.

Sir Abdur Rahim

31. PERSIAN

Total Marks—200

Aims

The aims of the syllabus in Persian are as follows :

- To acquaint the students with classical and modern Persian.
- To familiarise them with such selection of Persian texts including those from Iqbal, which have a value in practical life.

PAPER—I

Marks—100

- (a) Origin and development of the language.

Outline : (i) Elementary information about; Avesta, Old Persian and Pahlavi languages.

(ii) The advent of Persian prose and poetry in the present script in the Islamic era.

(iii) The earlier Persian prose writers and poets upto 4th century H/10th century A.C.

- (b) Significant features of the grammar of the language.

Outline : (i) Grammar :
The three tenses, imperative modd (Affirmative and Negative) and muzara for present and future tenses.

(ii) Translation of simple English passage into Persian.

2. Literary History and literary criticism—Literary movements, classical background, Socio-Cultural Influences and modern trends: Origin and development of modern literary genres.

Emphasis : (i) The literary history should include the development of Persian language and literature, besides Iran, in Afghanistan, the Indo-Pakistan Sub-Continent and the Persian speaking areas of the Former USSR.

(ii) In classical background, the four styles known as Khurasani, Iraqi, Hindi and Revivalist may be studied.

(iii) In the literary movements the revivalist and purist movements, and in the modern trends, the adaptation of Western loan words in Persian language needs to be emphasised.

- Short essay in Persian _____

PAPER—II

Marks—100

The paper will require first—hand reading of the texts prescribed and will be designed to test the candidate's critical ability.

- Texts

- Farrukhi Seestani.
(Qasida on the conquest of Soomnath)

- Unsar-ul-Maali Qabus (Qabus Nama).

Last Chapter 44

- Rumi Masnavi.

Daftar 1
(1st half upto
Dastan-e-Peer-i-
Changi.)

- Saadi Gulistan.

Chapter 7 & 8.

- Hafiz

Diwan upto radif Re

- 6. Iqbal
 - (a) Asrar-i-Khudi upto Marhilah-e-Siwum Niabat-e-Ilahi.
 - (b) Javid Nama (Last Chapter)
Address to Javid (Dialogue with the new generation).

- 2. Muslim Rationalists and Social Thinkers—Al-Farabi, Ibn-i-Sina, Ibn-i-Rushd, and Ibn-i-Khaldun: their main doctrines.
- 3. Schools of Muslim Theology—Mutazilism, Ash'arism, Sufism, Al-Ghazali (his Ethics and Criticism of Muslim Rationalists).
- 4. Muslim thought in South Asia with special reference to Shah Wali Ullah, Sayyid Ahmad Khan and Iqbal, and Post-Iqbalian Thought.

PERSIAN

SUGGESTED READINGS

Title	Author
1. Iranian Revolution	Dr. Wahiduz-Zaman Qureshi,
2. Modern Trends in the Persian Language.	Dr. A. Shakoor Ahsan,
3. اسرارِ خودی تا مہیلاہِ سیووم نیابتِ الہی (اردو)	ایڈیٹر: ڈاکٹر واہد زماں قوریشی
4. مکتبہ اشعارِ اقبال (اردو)	سید نبی گیلانی
5. اقبال کا فلسفہ (اردو)	مولانا سید امجد علی امجدی
6. اقبال اور ماہِ سوزگاری	ڈاکٹر سید محمد انور
7. اقبال کی فلسفہ کی روشنی میں (اردو)	ڈاکٹر گلشن اختر
8. تاریخِ فلسفہ اور فلسفہ (اردو)	ڈاکٹر سید امجد علی امجدی
9. تاریخِ کمالِ انسان	ڈاکٹر سید امجد علی امجدی
10. تاریخِ فلسفہ اور فلسفہ (اردو)	ڈاکٹر سید امجد علی امجدی
11. دستورِ فلسفہ	ڈاکٹر سید امجد علی امجدی
12. دستورِ فلسفہ اور فلسفہ (اردو)	ڈاکٹر سید امجد علی امجدی
13. فلسفہ اور فلسفہ (اردو)	ڈاکٹر سید امجد علی امجدی
14. فلسفہ اور فلسفہ (اردو)	ڈاکٹر سید امجد علی امجدی
15. فلسفہ اور فلسفہ (اردو)	ڈاکٹر سید امجد علی امجدی
16. فلسفہ اور فلسفہ (اردو)	ڈاکٹر سید امجد علی امجدی
17. فلسفہ اور فلسفہ (اردو)	ڈاکٹر سید امجد علی امجدی
18. فلسفہ اور فلسفہ (اردو)	ڈاکٹر سید امجد علی امجدی

32. PHILOSOPHY

Total Marks—200

PAPER—I

(Marks—100)

LOGIC

- 1. Formal and informal arguments; Elements of deductive reasoning; validity and truth; Proposition and syllogism.
- 2. Definition with special reference to Aristotle, Ibn-e-Taimya's Criticism of Aristotle; Relativity of definition; Ambiguity; vagueness and emotive use of language as impediments in clear thinking; Fallacies—formal, material and linguistic.
- 3. Symbolic Logic: value of special symbols, symbols for conjunction, Negation, Disjunction and Implication. Method of Deduction : Formal proofs of validity, Rules of Replacement.
- 4. The nature of scientific theory; Scientific method; Inquiry at common sense level and scientific level; Scientific explanation; The grounds of belief; induction, probability and functional analysis.
- 5. Muslim contribution to Logic—inductive and deductive.

PAPER—II

(Marks—100)

PHILOSOPHY—WESTERN AND ISLAMIC

- 1. Idealism, Pragmatism, Vitalism, Logical Positivism, Existentialism and Dialectical Materialism: The main arguments of these Philosophical theories and their impact on life and morals.

PHILOSOPHY

SUGGESTED READINGS

Title	Author
1. A Modern Introduction to Metaphysics	Drenon D.A.
2. A History of Philosophical Systems	Firm, Vergilius
3. Aqliyyat-e-Ibn-e-Taimya (Urdu)	Maulana Muhammad Hanif Nadvi.
4. A Modern Introduction to Logic	Stebbing, L.S.
5. Critical Thinking	Blank, Max
6. History of Muslim Philosophy Vols. I, II.	Sharif, M.M.
7. History of Modern Philosophy	Wright, W.K.
8. Human Knowledge, Its Scope and Limits	Russell, B.
9. History of Islamic Philosophy	Fakhri, Majid.
10. Introduction to Philosophy	Patrick G.T.W.
11. Iqbal and Post-Kantian Voluntarism	Dar, B.A.
12. Introduction to Logic	Copi, I.M.
13. Logical Postivism	Qadir, C.A.
14. Philosophical Analysis	Urmson, J.O.
15. Reconstruction of Religious Thought in Islam	Iqbal, M.
16. Types and Problems of Philosophy	Mead, H.
17. Types of Philosophy	Mocking, W.E.

33. PHYSICS

Total Marks—200

PAPER—I

(Marks—100)

Mechanics

Vectors—Dots, Cross and triple products, Gradient, divergence and applications.

Newtonian laws of motion; conservation law of energy; conservation of linear and angular momentum; Dynamics of rigid body; spin and precession; gyroscope; Gravitation; planetary motion including satellite.

Special theory of relativity. Mischelson—Morely experiment and Einstein's postulates; Lorentz transformation; time dilation and length contraction; equivalence of mass and energy.

Fluid Mechanics

Surface tension; Viscosity; Elasticity; fluid motion and Bernoullie's theorem.

Waves and Oscillation

Free oscillation with one and two degrees of freedom; forced and damped oscillations and phenomenon of resonance. Travelling waves and transmission of energy; Phase and Group velocity; standing waves.

Reflection, Refraction, Interference, Diffraction and Polarization of waves; interfero-meter and Newton's rings; Diffraction Gratings and their resolving power; spectro-meters. Electromagnetic wave equation; normal and anomalous dispersion; coherence, laser and its application.

Heat and Thermodynamics

Perfect gas and Van der Waals equation; Three Laws of Thermodynamics, Thermal properties of Simple system production and measurement of low temperatures; kinetic theory of gases; Maxwellian distribution of molecular velocities; Brownian motion; Transport phenomena. Classical Maxwell-Boltzmann Statistics and its application; Quantum Bose—Einstein and Fermi—Dirac Statistics.

PAPER—II

(Marks—100)

Electricity and Magnetism

Electric field due to point charges, Gauss' law Electric potential and poisson and Laplace's equation Dielectric medium and Polarization; Capacitance; Moving charges and magnetic field Ampere's law; Vector potential; Magnetic properties of matter; Transient current; Faraday's law of electromagnetic induction; Alternating current and LRO circuit. Maxwell's equations; Poynting theorem and Poynting Vector.

Electronics

Thermionic emission; Space charge; Diode. Triode Tetrode; Pentode and their static and dynamic characteristics; Amplitude modulation and demodulation or detection. Various basic circuits for rectification, amplification modulation and detection connected with radio receivers and transmission; n and p type semiconductors; Biased function; Transistors; Common base and common emitter configurations.

Atomic Physics

Bohr theory and quantum numbers including electron spin; Pauli's exclusion principle; Spectra of simple systems with one or two valence electrons. Photo electric effect Compton scattering; pair production; Lande's g factor and Zeeman effect. Raman effect; Waves and particles and De Broglie's Hypothesis; Shrodinger wave equation and its application to one dimensional harmonic oscillator. Heisen berg's uncertainty principle.

Nuclear Physics

Structure of Nuclei; Radioactivity α , β , and decay. Methods of detection, Mass Spectrometer. Accelerators. Phenomenon of fission; reactor and nuclear power, nuclear fusion and its application, Elementary particles and their properties.

PHYSICS

SUGGESTED READINGS

Title	Author
1. Perspectives of Modern Physics.	A. Beiser.
2. Fundamentals of Physics.	Halliday & Resnick.
3. Introduction to Electromagnetic Fields and Waves.	D. Corson & P. Lorrain.
4. Engineering Electronics.	J. D. Ryder.
5. Semiconductor Electronics.	J. F. Gibbons.
6. Physics Course.	Barkeley.
7. Heat and Thermodynamics.	W. Zemanasky
8. Nuclear Physics.	W. E. Burcham.
9. Nuclear Physics.	Kaplan.

34. POLITICAL SCIENCE

Total Marks—200

PAPER—I

(Marks—100)

PART 'A'

1. Political Theory

- (i) *Western Political Thought*
Plato, Aristotle, Machiavelli, Montesquieu, Hobbes, Locke, Rousseau, Bentham, Mill, Marx, Lenin, Mao
- (ii) *Muslim Political Thought*
Al-Farabi, Al-Mawardi, Nizam-ul-Mulik Tusi, Al-Ghazali, Ibn-i-Khaldun, Iqbal

PART 'B'

2. The nature and emergence of Modern state system, Islamic concept of state.
3. Political concepts, Sovereignty, Law, Liberty, Equality, Rights and Duties.
4. Political Dynamics : Public Opinion, Propaganda, Political Parties, Pressure Groups.
5. Political Institutions : Legislature, Executive, Judiciary, Political Elites, Civil and Military Bureaucracy.
6. Forms of Government : Monarchy, Democracy, Dictatorship, Unitary and Federal, Presidential and Parliamentary.
7. Totalitarianism : Fascism, Communism.
8. Local Self-government : Theory and Practice with special reference to Pakistan.

POLITICAL SCIENCE

PAPER—II

(Marks—100)

PART 'A'

1. Selected Political Systems : Nature and dynamics of major political institutions in U.S.A., U.K., France and Former Soviet Union.

PART 'B'

2. Political Systems of developing countries : Turkey, Iran, India and China.
3. Rise of Muslim Nationalism in South Asia with special reference to the role of Sir Syed Ahmed Khan, Iqbal and Quaid-i-Azam Mohammad Ali Jinnah.
4. A comparative and critical analysis of the 1956, 1962, 1973 and 1985 Constitutions of Pakistan.

POLITICAL SCIENCE

SUGGESTED READINGS

Title	Author
1. History of Muslim Philosophy	M. M. Sharif
2. Constitutional Development in Pakistan	GW. Choudhry
3. Comparative Politics : A World View	Almond & Powell
4. Contemporary Political Analysis	Garles Worth James
5. Govt. and Parliament : A Survey from the inside	Herbert Morrison

6.	Govt. and Politics in Pakistan	Mushtaq Ahmed
7.	History of Political Theory	George H. Sabine
8.	History of Political Theories (Three Volumes)	William A. Dunning
9.	Political Thought in Medieval Islam	Rosenthal
10.	Modern Islamic State	Rosenthal
11.	Political Thought in perspective	William Edenstein
12.	Patterns of Governments	Samuel H. Beer Adem B. Ullam
13.	Pakistan A Political Study	Keith Callard
14.	Politics, Parties and Pressure Groups	V.O. Key Jr.
15.	Modern Political Systems : Asia	Roy, C. Macradis (Ed.)
16.	Politics in Pakistan : Nature and Direction of Change	Khalid Bin Sayeed
17.	Reflection on Government	Earnest Barker
18.	South-East Asia Political System	Lucian W. Pye
19.	The Political System of Pakistan	Khalid B. Sayeed
20.	Nizam-ul-Mulk Tusi, Published by Mohammad Ashraf, Lahore, 1978	Rizvi S. Rizwan Ali
21.	پیشبردگزارہ امور تعلیم و تربیت کراچی، 1990ء (قریباً)	

**35. PSYCHOLOGY INCLUDING
EXPERIMENTAL PSYCHOLOGY**

Total Marks—200

PAPER—I

(Marks—100)

1. Definition and scope of Psychology, Psychology as a science of behaviour, Schools and Systems of Psychology, Recent trends in Psychology.
2. Nervous System : Structure and functions of cells, Central and Peripheral Nervous System, Endocrine system.
3. Learning : Conditioning—classical and operant, Reinforcement, Avoidance conditioning, Extinction, Discrimination learning, imprinting, Theories of learning, Verbal learning, Probability learning, Concept learning, Perceptual learning, Transfer and interference, Motivational factors in learning, Readiness and individual differences in learning.
4. Nature of motives and emotions : Homeostasis, Biogenic and social motives, Measurement of human motivation, Theories of motivation—Maslow, Lewin and Freud, Theories of emotion, Role of endocrine glands, frustration and conflict.
5. Nature of perceptual organization : Perception of distance, Movement, Space, Depth, colour, Perceptual constancy, Effect of learning and motivation on perception, Senses viz. vision, hearing and other senses. Perception and sensation, Determinations of perception (Needs, attitudes, sets, values, personality traits, emotional states, suggestions, etc.).
6. Nature and determinants of personality : Factors in development of personality. Theories of personality, trait and types, Freudain, Neo-Freudain, Murry, Allport, Cattel. Types of personality tests and their rationale.
7. Socialization : Society and personality, Formation of opinions and attitudes, Prejudice.
8. Structure and Functions of Group, Role status relations, Group norms, Group solidarity, Intergroup tension, International tension.

**PSYCHOLOGY INCLUDING
EXPERIMENTAL PSYCHOLOGY**

PAPER—II

(Marks—100)

1. Meaning, phases and characteristics of Growth, development and Maturation, Methods of developmental psychology, Biological and socio-cultural factors, Importance of Developmental psychology, Broad approaches to the study of children.
2. Pre-natal development and infancy : Genetic Factors, Hereditary transmission and chromosomal abnormality, Stages, Developmental irregularities, Psychological and physical characteristics of the infant, Methods of studying infant behaviour.
3. Physical, motor and sensory development. Perceptual development. Intellectual development : Development of logical thought in early childhood, Development of concepts, Creativity. Emotional Development : patterns, characteristics, Some common emotional patterns.
4. Concept of abnormality : popular and scientific, Goals of Clinical Diagnosis, Personality Assessments, Behavioural Assessment, Nature of Clinical Judgement, Sources of information in clinical diagnosis, Assessments of organisations, institutions and environment, Professional issues, The nature of professional preparation for clinical psychological work, ethical standards and legal issues.
5. Therapies : Somatic therapies, environmental therapies, psychoanalytic, phenomenological, existential, Gestalt, rational—emotive and cognitive Therapies, Behaviour therapy and behaviour modification, Group therapies.
6. Intelligence : Its nature and assessment, Mental retardation.
7. Biological and sociological factors in maladjustments and crime, Juvenile delinquency, drug addiction, alcoholic and sex offences—characteristics, causation and treatment.
8. Psychoneurotic disorders, Psychosis, Character disorders, Psychosomatic disorders.
9. Industry : Nature of the work situations; work, vocation, personality and society, Working environment, Works methods and modern approaches, Work efficiency, Group dynamics, Work incentives, Job satisfaction.

**PSYCHOLOGY INCLUDING
EXPERIMENTAL PSYCHOLOGY**

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. An Introduction of Psychology	Wikon & Wargment Knight.
2. Child and Adult Psychology	Medinnus, G. Rand, V. C. Lohnson
3. Historical Introduction to Modern Psychology	Murphy, G. & Koraclr, J.K.
4. History and System of Psychology	Sahakiam, W.S.
5. Historical Roots of contemporary Psychology	Wolman, B.B.
6. Psychology Around the World	Mistak, H. & Seston
7. Psychological Testing	Anastasi, A.
8. Psychotherapy and Counselling	Sauakian
9. Physiological Psychology	Gronmen, S.P.
10. Reading in Abnormal Psychology	Allmon, Jaffe
11. Systems and Theories in Psychology	Menor, M.H.D. Hill in, W.O.
12. Social Psychology	Berkowitz, Z.
13. Studies in Cross cultural Psychology	Warron, N.

36. PUBLIC ADMINISTRATION

Total Marks—100

1. *Public Administration.*—Its nature and scope, the role of Public Administration in a modern Welfare State.
2. *Major Schools of thought in Administration.*—Scientific Management Movement, Human Relationists; Behavioural School; Systemic theory.
3. *Bureaucracy.*—Concept of Bureaucracy, Theories of Bureaucracy, Ecology of Bureaucracy; Bureaucracy of Pakistan as a Change Agent.
4. *Administrative Leadership.*—Approaches to the study of Leadership, Forms of Leadership, Leadership qualities.
5. *Administrative Accountability.*—Internal and External Controls; Executive Control, Legislative Control, Judicial Control, Ombudsman, Public Opinion and Pressure Groups; Problems of Administrative Accountability in Pakistan.
6. *Planning.*—Types of Plans, Planning Process; Principles of Planning, Planning Machinery; the system of planning and programming in Pakistan, Planning Machinery in Pakistan.
7. *Organization.*—Types of Organization, Theories of Organization, Principle of Organization, The Organization of Federal and Provincial Governments in Pakistan, Public Corporations in Pakistan.
8. *Personnel Administration.*—Nature and scope of Personnel Administration; Personnel Functions, Tools of Personnel Management, Salient Features of the system of Public Personnel Management in Pakistan.
9. *Controlling and Co-Ordination.*—Forms of Controls, Control Mechanism, the process of Control, Principles of Controlling; Principles of Coordination; Machinery for Coordination; Problems of Coordination in Public Administration in Pakistan.
10. *Communication.*—Types of Communication, Communication Channels, Communication Process, Principles of Communication.
11. *Financial Administration.*—Elements of Financial Administration, Performance and Programmed Budgeting, Capital Budget, Principles of Budgeting, Auditing and Accounting.

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|--|--------------------|
| 10. Public Administration Theory and Practice | Fesler, James W. |
| 11. Pakistan in Search of Democracy, 1947—77 | Yusuf, Hamid. |
| 12. Pakistan The Enigma of Political Development | Ziring, Lawrence |
| 13. Research on the Bureaucracy of Pakistan. | Braibanti, Ralph |
| 14. The Human Side of Enterprize. | Douglas Mc Gregor. |
| 15. The Bureaucracy of Pakistan | Charles F. Kennedy |

37. PUNJABI

- پنجابی**
- (کل نمبر 100)**
- قسم (50 نمبر)**
- 1۔ نوبت سمجھ کر کسی بھی دو سوالوں کو منتخب کرنا اور ان کو مختصراً جواب دینا۔
 - 2۔ کلیدی الفاظ کی وضاحت کرنا۔
 - 3۔ (الف) 'تنقیح' اور (ب) 'تعمیر' کے معنی بیان کرنا اور ان کے استعمال میں فرق لکھنا۔
 - 4۔ (الف) 'تنقیح' اور (ب) 'تعمیر' کے معنی بیان کرنا اور ان کے استعمال میں فرق لکھنا۔
 - 5۔ (الف) 'تنقیح' اور (ب) 'تعمیر' کے معنی بیان کرنا اور ان کے استعمال میں فرق لکھنا۔

- قسم (50 نمبر)**
- 1۔ اسلامی اصول اور اصولی اصولوں کی وضاحت کرنا۔
 - 2۔ (الف) 'تنقیح' اور (ب) 'تعمیر' کے معنی بیان کرنا اور ان کے استعمال میں فرق لکھنا۔
 - 3۔ (الف) 'تنقیح' اور (ب) 'تعمیر' کے معنی بیان کرنا اور ان کے استعمال میں فرق لکھنا۔
 - 4۔ (الف) 'تنقیح' اور (ب) 'تعمیر' کے معنی بیان کرنا اور ان کے استعمال میں فرق لکھنا۔
 - 5۔ (الف) 'تنقیح' اور (ب) 'تعمیر' کے معنی بیان کرنا اور ان کے استعمال میں فرق لکھنا۔
 - 6۔ (الف) 'تنقیح' اور (ب) 'تعمیر' کے معنی بیان کرنا اور ان کے استعمال میں فرق لکھنا۔
 - 7۔ (الف) 'تنقیح' اور (ب) 'تعمیر' کے معنی بیان کرنا اور ان کے استعمال میں فرق لکھنا۔
 - 8۔ (الف) 'تنقیح' اور (ب) 'تعمیر' کے معنی بیان کرنا اور ان کے استعمال میں فرق لکھنا۔
 - 9۔ (الف) 'تنقیح' اور (ب) 'تعمیر' کے معنی بیان کرنا اور ان کے استعمال میں فرق لکھنا۔

**PUBLIC ADMINISTRATION
SUGGESTED READINGS**

Title	Author
1. A Handbook of Public Relations.	United Nations.
2. An Introduction to the Public Administration	E.N. Cladden
3. Administrative Behaviour	Herbet, A Simon.
4. Bureaucracy : Modern Society	Pebr, M. Blau.
5. Human Relations Administration	Robert Dubir.
6. Introduction to the Study of Public Administration	L.D. White
7. Public Administration	Simon, Smithuburg & Thompson.
8. Public Administration	Pfiffner and Presthus
9. Public Administration for a Welfare State	Paul Ablebly

38. PURE MATHEMATICS

Total Marks—200
PAPER—I
 (Marks—100)

Candidates will be asked to attempt three questions from Section A and two questions from section B.

SECTION A

Modern Algebra

Groups, subgroups, Lagranges, theorem, cyclic groups, normal subgroups, quotient groups. Fundamental theorem of homomorphism. Isomorphism theorems of groups, Inner automorphisms. Conjugate elements, conjugate subgroups. Commutator subgroups.

Rings, Subrings, Integral domains, Quotient fields, Isomorphism theorems, Field extension and finite fields.

Vector spaces, Linear independence, Bases, Dimension of a finitely generated space. linear transformations, Matrices and their algebra. Reduction of matrices to their echelon form. Rank and nullity of a linear transformation.

Solution of a system of homogeneous and non-homogeneous linear equations. Properties of determinants. Cayley-Hamilton theorem, Eigenvalues and eigenvectors. Reduction to canonical forms, specially diagonalisation.

SECTION B

Geometry

Conic sections in Cartesian coordinates, Plane polar coordinates and their use to represent the straight line and conic sections. Cartesian and spherical polar coordinates in three dimensions. The plane, the sphere, the ellipsoid, the paraboloid and the hyperboloid in Cartesian and spherical polar coordinates.

Vector equations for Plane and for space-curves. The arc length. The osculating plane. The tangent, normal and binormal. Curvature and torsion. Serre-Frenet's formulae. Vector equations for surfaces. The first and second fundamental forms. Normal, principal, Gaussian and mean curvatures.

PAPER—II

(Marks—100)

Candidates will be asked to attempt any three questions from Section A and two questions from Section B.

SECTION A

Calculus and Real Analysis

Real Numbers. Limits. Continuity. Differentiability. Indefinite integration. Mean value theorems. Taylor's theorem. Indeterminate forms. Asymptotes. Curve tracing. Definite integrals. Functions of several variables. Partial derivatives. Maxima and minima. Jacobians. Double and triple integration (techniques only). Applications of Beta and Gamma functions. Areas and Volumes. Riemann-Stieltje's integral. Improper integrals and their conditions of existences. Implicit function theorem. Absolute and conditional convergence of series of real terms. Rearrangement of series, Uniform convergence of series.

Metric spaces. Open and closed spheres. Closure, Interior and Exterior of a set.

Sequences in metric space. Cauchy sequence convergence of sequences. Examples. Complete metric spaces. Continuity in metric spaces. Properties of continuous functions.

SECTION B

Complex Analysis

Function of a complex variable; Demoiver's theorem and its applications. Analytic functions, Cauchy's theorem. Cauchy's integral formula, Taylor's and Laurent's series. Singularities. Cauchy residue theorem and contour integration. Fourier series and Fourier transforms. Analytic continuation.

PURE MATHEMATICS

SUGGESTED READINGS

Title	Author
1. Advance Calculus	Kaplan, W.
2. Analytic Function Theory Vol. I	Hille, E.
3. An Introduction to Differential Geometry	Wilmore, T.S.
4. Complex Analysis	Goodstein, G.R.G.

5. Calculus with Analytic Geometry	Yusuf, S.M.
6. Differential Geometry of Three Dimensions	Weatherburn, C.E.
7. Elements of Complex Analysis	Pennisi, L.L.
8. Theory of Groups	Majeed, A.
9. Mathematical Methods	Yusuf, S.M.
10. Mathematical Analysis	Apostal, T.M.
11. Principles of Mathematical Analysis	Rudin, W.
12. The Theory of Groups	Macdonald, I.N.
13. Topics in Algebra	Herstein, I.N.

39. PUSHTO

Total Marks—100

1. Essay on prominent works personalities and writers.
2. Translation of unseen passages from Pushto into English or Urdu.
3. Translation of unseen passages of English or Urdu into Pushto.
4. General Questions on evolution and criticism of Pushto Prose and Poetry.
5. Folk Literature Introduction of Tappa, Charbaita, Lobha, Neemakai, Sandara and Badala (including folk stories).

PUSHTO

SUGGESTED READINGS

Title	Author
1. Foreign Approach to Khushal Khan Khattak.	Dost Muhammad Kamil.
2. Pushto Poetry	Major Roverty.
3. Selected Poems of Khushal Khan Khattak.	Major Roverty.
4. The Pathans	Sir Olaf Careo.

۵	د زېږون او مړينې	داسې زېږي صاحب
۶	پښتانه شعرا	داسې زېږي صاحب
۷	پښتانه لیکوالان	داسې زېږي صاحب
۸	اړخه لوست	داسې زېږي صاحب
۹	د ژبې یاد	داسې زېږي صاحب
۱۰	لور خيالې څانګه	داسې زېږي صاحب
۱۱	کلیه لوست	داسې زېږي صاحب
۱۲	پښتو ژبې (ژوند)	داسې زېږي صاحب
۱۳	پښتانه لوست	داسې زېږي صاحب
۱۴	پښتانه لوست	داسې زېږي صاحب

40. SINDHI

SINDHI

Total Marks—100

ڪل نمبرون 100

۱	پښتانه لوست	داسې زېږي صاحب
۲	پښتانه لوست	داسې زېږي صاحب
۳	پښتانه لوست	داسې زېږي صاحب
۴	پښتانه لوست	داسې زېږي صاحب
۵	پښتانه لوست	داسې زېږي صاحب
۶	پښتانه لوست	داسې زېږي صاحب
۷	پښتانه لوست	داسې زېږي صاحب
۸	پښتانه لوست	داسې زېږي صاحب
۹	پښتانه لوست	داسې زېږي صاحب
۱۰	پښتانه لوست	داسې زېږي صاحب



41. SOCIOLOGY

Total Marks—100

1. Individual, Culture and Society : Individual as a social product, The variety of social forms, Methods of socialization, Ethnocentricism, Norms and Values, Cultural Patterns, Varieties of sub-cultures.

2. Sociological Theory : The sociological perspectives— Evolutionary, order and conflict, Evolutionary Theorists : Ibn-i-Khaldun Spencer and Tannis, Order Theorists: August Comte, Emile Durkheim, Max Weber, Conflict Theorists : George Hegel, Karl Marx, Lewis Coser, Mills.

3. Methods of Sociological Research : Research Design, Surveys, Participant Observation, Experiments, Case Studies.

4. Social Interaction : Significance of social classes, Forms of social classes—Tribes, Biradaris, Castes, Classes and Feudal system in Pakistan, Social Mobility—nature of social mobility, Mobility determinants in Pakistan society, Social immobility, Culture in poverty.

5. Social Control : Mechanisms of social control—internal and external means of social control, Alienation, Integration—integrative patterns in Pakistani Society.

6. Social and Cultural Change and Social Policy : Processes of Social and Cultural Change—discovery, invention, diffusion, Factors in the rate of social and culture change, Incentives and inhibitions to social and cultural change in Pakistan Social planning and directed social and cultural change.

7. Community : The rural community, Traditional Characteristics of rural life, The urban community, Rural—Urban convergence, Urbanism, Future of cities in Pakistan.

8. Social Institutions : The nature and genesis of institutions, the process of institutions, Functions and Trade of Social Institutions. Family, Religion, Educational, Economic and Political Institutions.

9. Social Problems in Pakistan : Population Growth, Demographic Transition : Deviant Behaviour, Institutionalised evasions, social conflicts, internal and international Migration, Aging, Drug abuse, Prostitution, Smuggling, Illitracry and Poverty.

SOCIOLOGY

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. Anthropology : The Study of Man	Adamson Hoebel, E.
2. Pakistani Society	Akbar Ahmad, S.
3. Contemporary Social Problems	Robert K. Merton

4. Contemporary Sociological Theories	Pitrim Sorokin
5. Family in Asia	Man Singh Das & Pahos D. Bardis
6. Ibn-i-Khaldun : His Life and Work	M. Abdullah Enan
7. Master of Sociological Thought	Lewis A. Coser
8. Pakistani Society	M. Iqbal Chaudhry
9. Sociology	Ogburn & Nimkoff
10. Strategies of Social Research	Smith, H.W.
11. Sociology : Roles & Relationships	Everett K. Wilson
12. Social Problems	Jon. M. Shepard & Voss
13. Social Change and History	Robert Nisbet
14. Feudal System in Pakistan	Nawab Haider Naqvi
15. The Sociology of Rural Life	Lynn Smith, T.
16. The Sociology of Social Problems	Horton & Leslie
17. The Sociology of Religion	Max Weber

42. STATISTICS

Total Marks—100

1. Basic Probability : Axiomatic definition of probability, random variable, distribution function, probability density function, mathematical expectation; conditional probability, jointly distributed random variables, marginal and conditional distributions, conditional expectation, stochastic independence.

2. Some Special Distributions : Binomial, poisson, negative binomial, hypergeometric, normal distributions with their derivation of their mean and variance; Definition and Application of chisquare, 'T' and 'F' distributions.

3. Statistical Inference: Maximum likelihood estimation of the mean and the variance of a normal population; confidence interval for mean, difference of means and for variance; testing hypothesis for the equality of two means (paired and unpaired observations); testing of equality of several means (ANOVA) and testing of variance and equality of two variance.

4. Correlation and regression : Simple linear regression model, point and interval estimation of parameters, Simple, Partial, Multiple Correlation and testing of these correlations.

5. Sampling, Simple random, stratified, systematic and cluster sampling, estimates of mean and total and their precision.

6. Applications of Statistics in social, economic and political problems public health, crimes, Law, social innovations, economic development, socio-political inequality.

STATISTICS

SUGGESTED READINGS

<i>Title</i>	<i>Author</i>
1. Introduction to the Theory of Statistics.	Mood, Graybill and Boes.
2. Mathematical Statistics.	Freund.
3. Mathematical Statistics.	Hood and Craig.
4. Sampling Techniques (3e)	Cochran and Cox.

5. Statistics : An Introductory Analysis. Yamane
 6. Statistics : A Guide to the Un-known. Tanur, Hudith (ed)

43. URDU

کل نمبر 200

کل نمبر 100

کل نمبر 100

کل نمبر 100

کل نمبر 100

کل نمبر 100

کل نمبر 100

کل نمبر 100

کل نمبر 100

کل نمبر 100

44. ZOOLOGY

Total Marks—200

PAPER—I

(Marks—100)

INVERTEBRATE AND CHORDATE ZOOLOGY

The candidates will be required to attempt five questions—three from Part—A and two from Part—B.

PART—A

Invertebrate

General organization (general morphology, mode of life, adaptations, life cycles and economic importance) of the following groups with special reference to the topics mentioned in each group :—

Protozoa : Parasitism, conjugation and autogamy, medical importance.

Porifera : Canal system, skeletal structures and their taxonomic value, position of porifera in the Animal Kingdom.

Coelenterata : Polymorphism ; mesenteries ; corals and coral reefs.

Platyhelminthes : Parasitic adaptations, medical importance.

Nematoda : Medical importance.

Annelida : Coelom, metamerism.

Mollusca : Shell, modifications of foot, feeding, respiration, shell fishery.

Arthropoda : Appendages, feeding; respiration, larvae.

Echinodermata : Skeleton, water vascular system, larvae.

PART—B

Chordata

Origin; comparative account of skeleton, circulatory, excretory and nervous systems, development (egg types, cleavage, blastula and gastrula, germ layer/formation, embryonic membranes and placentation) natural history (mode of life, migration, adaptations, biting mechanism of snakes).

کل نمبر 100

کل نمبر 100

کل نمبر 100

کل نمبر 100

کل نمبر 100

کل نمبر 100

کل نمبر 100

کل نمبر 100

ZOOLOGY**PAPER—II**

(Marks—100)

GENERAL ZOOLOGY

The candidates will be required to attempt at least one question from each part.

Part—A

Cell Biology : Morphology, Chemical composition and functions of nucleus, nuclear inclusions and cytoplasmic organelles, protein synthesis and molecular genetics, mechanism of mitosis and meiosis.

Part—B

General Physiology : Respiration, respiratory mechanism, respiratory pigments, transport of oxygen and carbon dioxide, circulation : haemodynamics, control of cardio vascular system, nutrition : modes of nutrition, digestion and assimilation of food stuff, Excretion : nature and sources of substances excreted, modes of excretions, Nervous system, nerve impulses, Hormones and their biological action.

Part—C

Genetics : Mendelian principles, multiple alleles, interaction of genes; linkage and crossing over, mapping of genes, sex determination and sex linkage, mutations, chromosomal aberrations, gene concept.

Part—D

Evolution : Origin of life, organic diversity, theories to account for organic diversity, Phylogeny and ontogeny, species concept, mechanism of evolution, modern concept of natural selection, evolutionary trends.

Part—E

Ecology : Concept of ecosystem, biogeochemical cycles, animal adaptations to major habitats, environmental pollution and its effect on life.

ZOOLOGY**SUGGESTED READINGS**

<i>Title</i>	<i>Author</i>
1. A Text Book of Zoology (Invertebrate)	Parker and Haswell
2. Comparative Anatomy of the Vertebrates	George C. Kent
3. Invertebrate Zoology	Hegner and Engemann
4. Cell Structure and Function (Modern Biology Series)	Loewy and Siekevitz
5. Cell and Molecular Biology (Eighth Edition)	De-Robbertis, E.O.D., & De-Robertis, EMF.
6. Fundamentals of Ecology	Odum
7. Principles of Genetics	Strickberger
8. Introduction to Evolution	Moody
9. Modern Genetics	Ayala, F.J. and Kiger, J.A. Jr.
10. Text Book of Medical Physiology	Guyton, W.B.
11. Molecular Biology of Gene	Watson, J.D.