

REVISED SYLLABUS FOR COMBINED COMPETITIVE

EXAMINATIONS OF SPSC

The existing Syllabus for the Combined Competitive Examinations of the SPSC became old and out of sync over a period of many years that it was being followed; hence there was an urgent need to revise it and bring it at par with the present day requirements.

Keeping this objective in mind the SPSC initiated the process of syllabus revision in February 2018. The exercise involved engaging with stakeholders including the concerned Government of Sindh departments for whom the recruitment is carried out; Academia from all the leading Universities of Sindh; and other professionals. In this regard a Consultative Workshop was also organized in April 2018 by the SPSC at NIM Karachi where active participation was witnessed from all the participants.

After passing through various scrutiny / approval stages the revised syllabus has been finally agreed and approved by the competent authority i.e. the Chief Minister of Sindh.

The SPSC expects that this revised syllabus will be quite helpful for the intending candidates as it is now more relevant to the present day requirements.



SINDH PUBLIC SERVICE COMMISSION
THANDI SARAQ, HYDERABAD.

NO.PSC/EXAM: (C.S)/2019/317

Date: 24.06.2019

NOTIFICATION

It is notified for the information of all aspirants that the syllabus for Combined Competitive Examination (CCE) has been revised with the approval of Competent Authority i.e. Honorable Chief Minister, Sindh and therefore the same shall be applicable for Combined Competitive Examination-2020 and onwards.

The revised syllabus is being uploaded on the official website of the Commission ie: - www.spsc.gov.pk.


SECRETARY

SINDH PUBLIC SERVICE COMMISSION



GOVERNMENT OF SINDH

**REVISED PROCEDURE, REQUIREMENTS AND
SYLLABUS FOR ADMISSION TO THE COMBINED
COMPETITIVE EXAMINATION**

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SINDH PUBLIC SERVICE COMMISSION THANDI SARAQ, HYDERABAD

REVISED PROCEDURE, REQUIREMENTS AND SYLLABUS FOR ADMISSION TO THE COMBINED COMPETITIVE EXAMINATION

1. Both-Male and Female citizens of Pakistan (unless required otherwise by the Recruitment Rules) having Domicile and Permanent Residence in Sindh are eligible.
2. The Examination may be held at Karachi, Hyderabad, Sukkur, Larkana, Mirpurkhas, and Shaheed Benazirabad. However, the Commission reserves the right to finally decide the place where the candidate would be examined or interviewed.
3. The Government of Sindh reserves the right not to hold Examination or not to fill any post or to fill more or less than the number of vacancies or add any other post to the posts already announced by the Commission.
4. Exact date of the Examination will be announced by the Commission in the due course of time.
5. Application forms are entertained only "online".
6. The candidate must upload latest Passport size photo with white background facing camera directly with both eyes open and full face in view.
7. (A) The fee of Rs.1000/- only must be deposited on or before the closing date in a Government Treasury or in a Branch of State/National Bank of Pakistan in Sindh or in a State Treasury authorized by Govt. of Sindh to transact the business on its behalf.

(B) On the Challan following information must be mentioned:

- (i) Name of the candidate
- (ii) Name of Examination
- (iii) Head of Account "C02101- organ of State- Exam Fee (SPSC receipts)", should be clearly mentioned.

A copy of Original Challan should be retained by the candidate and shall be produced during the process of examination. The Application Form shall be rejected if the name of the candidate, the examination applied for or the Head of Account is not or incorrectly mentioned on it.

(C) No claim for refund of Examination Fee shall be entertained in any circumstances. Neither shall it be held in reserve, nor it shall be credited for another Examination/selection.

8. (A) No person shall be admitted to the Examination unless he/she:-
 - I. Is a Graduate from a recognized University.
 - II. Is not less than 21 years and not more than 30 years on 1st of September of the advertisement year.
 - III. In the case of candidates from scheduled castes the upper age limit is 31 years on 1st September of the advertisement year.

(B) In the case of candidates who are serving in connection with the affairs of the Federation and are domiciled in Sindh and persons serving in connection with the affairs of the province of Sindh with a continuous service of at least four (04) years on 1st September of the Advertisement Year, the upper age limit shall be 35 years.

NOTE: Employees of autonomous/Semi Autonomous bodies/ Local bodies etc, are not Eligible

for this concession.

9. The candidate must be in possession of following documents that will be required during the examination process:-
- (i) A Certificate from the University that the candidate has passed the Degree Examination.
 - (ii) Certificate from the Controller of Examinations of the University showing the exact date of the announcement of the result.
 - (iii) Matriculation or Secondary School Certificate issued by the concerned Board showing the date of birth.
 - (iv) Domicile Certificate from the concerned Authority of the District to which the candidate belongs.
 - (v) Permanent Residence Certificate (Form-D) of the candidate himself/herself as required under Rule 7 of the Sindh Permanent Residence Certificate Rules 1971 for the purpose of recruitment to Public Service in Sindh.
 - (vi) The following Character certificates in case the candidate is not a Government Servant:-
 - (A) From the Principal or Academic Officer of his/her University or College or School last attended, and,
 - (B) From two responsible persons who are well acquainted with him/her in and not connected with his/her University or College or School.
 - (vii) In the case of those Government Servants who come in category 8 (B) a certificate from the Head of the Department or Office showing that he/she has at least four (04) years continuous Government service at his/her credit on 01st of September of the Advertisement Year.
10. The candidate should carefully read the titles of all Compulsory and Optional Subjects mentioned in the electronic application. Options (e.g Domicile, Age, Qualification, Examination Center, Optional Subjects and Preference of Posts etc) once exercised shall not be changed after the closing date of the advertisement.
11. All the documents mentioned at para 9 above in Original must be produced before the Viva-Voce, failing which the candidate neither shall be examined nor any other time/date shall be given.
12. A candidate who knowingly furnishes any particulars which are false or suppresses material information or deliberately submits forged certificates or tampers with the material in his/her age or educational certificates, may be disqualified from this and/or subsequent selection(s)/examinations to be conducted by the Commission and shall be recommended to be debarred from further employment under Government.
13. A candidate who makes false accusations or insinuations against rival candidate(s) shall be disqualified.
14. A candidate shall not be admitted to the examination hall in case he/she does not bring in the original CNIC, the Bank Challan and the Admission Slip.
15. The candidate must reach the Examination Center at least 30 minutes before the commencement of the Examination. No candidate shall be allowed once the Examination has commenced.
16. No candidate shall be in possession of any hand written material, book(s), or any annotation(s) or any article(s) other than that is specified in the General Instructions / specially authorized in the examination hall. Possession of Mobile-phone and other electronic gadgets with built-in programmes or any other source of communication through networking shall not be allowed at any cost. Candidate shall not bring such equipment / gadgets / materials in the examination hall.
17. **Important Note:-**
- (A) Answer Books/Scripts of all the subjects of the Examinations are the secret documents and therefore shall neither be permitted to be seen by the candidates nor their representatives nor re-examination / re-checking of the answer books/scripts shall be allowed under any circumstances.
 - (B) Canvassing in any form will disqualify a candidate.

- (C) All communications be addressed to Secretary, Sindh Public Service Commission Thandi Sarak, Hyderabad.

18. **Syllabus and standard for the Competitive Examination is as under:-**

- (1) The written examination shall include Compulsory and Optional Subjects.
- (2) Every candidate shall take all the Compulsory Subjects and choose Optional Subjects of 400 Marks, subject to the following restriction:-
 - (a) Not more than one subject shall be taken from each group.
 - (3) A candidate shall answer the papers in English unless otherwise directed.
- (4) The details of marks shall be as under:-

i. Compulsory Subjects (Total 06 Subjects)	Maximum 600 Marks
ii. Optional Subjects (of 400 Marks)	Maximum 400 Marks
iii. Viva-Voce	Maximum 200 Marks
- (5) The Compulsory and Optional Subjects and maximum marks fixed for each subject are at **Annexure-I**.
- (6) Syllabus (required readings of topics) and recommended books for each subject may be seen at **Annexure-II**.

SINDH PUBLIC SERVICE COMMISSION
COMBINED COMPETITIVE EXAMINATION (CCE)
WRITTEN EXAMINATION (1000 MARKS)

A: COMPULSORY SUBJECTS (600 MARKS)

Code No.	Subjects	Marks
01.	English Essay	100
02.	English (Precis and Composition)	100
03.	General Paper in Sindhi OR General Paper in Urdu	100
04.	Current Affairs & Pakistan Affairs	100
05.	General Science and ability	100
06.	Islamic Studies OR Comparative Study of Major Religions (For non Muslims)	100
Total		600

B: OPTIONAL SUBJECTS (400 MARKS)

Note:- Candidates are required to opt subjects of 400 Marks from the following Groups. Not more than 01 (one) subject from each group shall be taken.

Group-I: (To select one subject of 200 marks only)

Code No.	Subject	Marks
07.	Accountancy & Auditing	200
08.	Economics	200
09.	Computer Science	200
10.	Political Science	200
11.	International Relations	200

Group-II: (To select one subject of 100 marks only)

Code No.	Subject	Marks
12.	Physics	100
13.	Chemistry	100
14.	Applied Mathematics	100
15.	Pure Mathematics	100
16.	Statistics	100
17.	Geology	100

Group-III: (To select one subject of 100 marks only)

Code No.	Subject	Marks
18.	Business Administration	100
19.	Public Administration	100
20.	Governance & Public Policies	100
21.	Town Planning & Urban Management	100

Group-IV: (To select one subject of 100 marks only)

Code No.	Subject	Marks
22.	History of Pakistan & India	100
23.	Islamic History & Culture	100
24.	European History	100
25.	History of USA	100

Group-V: (To select one subject of 100 marks only)

Code No.	Subject	Marks
26.	Gender Studies	100
27.	Environmental Sciences	100
28.	Agriculture & Forestry	100
29.	Botany	100
30.	Zoology	100
31.	English Literature	100
32.	Urdu Literature	100
33.	Sindhi Literature	100

Group-VI: (To select one subject of 100 marks only)

Code No.	Subject	Marks
34.	Law	100
35.	Constitutional Law	100
36.	International Law	100
37.	Mercantile Law	100
38.	Muslim Law & Jurisprudence	100
39.	Criminology	100
40.	Philosophy	100

Group-VII: (To select one subject of 100 marks only)

Code No.	Subject	Marks
41.	Journalism & Mass Communication	100
42.	Psychology	100
43.	Geography	100
44.	Sociology	100
45.	Anthropology	100

Note - 1: The Question papers in Urdu and Sindhi should be answered in the respective languages.

Note - 2: There will be two papers of 100 marks from each of the Subjects carrying 200 marks. Each paper will be of three hours duration.

Note - 3: Non Muslim Candidates may either opt for Islamic Studies OR Comparative Study of Major Religions as may suit them.

Note - 4: Candidates are required to opt either General Paper in Sindhi or General Paper in Urdu.

Note - 5: All the Papers will be of three (03) hours duration.

Note - 6: If a candidate's handwriting is not easily legible a deduction which may be considerable, may be made on this account from the total marks secured by him/her.

Note - 7: Credit will be given for good English including orderly, effective and exact expression combined with due economy of words in all subjects of the examination and not only in subjects which are specially devoted to English.

Note - 8: Names of candidates who qualify shall be arranged in order of merit according to the Aggregate marks obtained in the examination.

Note - 9: In the event-of a tie, the order of merit shall be determined in accordance with the highest Marks secured in the Viva-Voce. Should the marks in the Viva Voce of the candidates be equal then the order of merit shall be decided in accordance with the highest marks obtained by such candidates in the aggregate of the compulsory subjects.

NOTE - 10: No candidate shall be summoned for Viva-Voce test unless he/she obtains at least 33 percent marks in each individual written paper and 50 percent marks in the aggregate of the written portion of the examination. No candidate shall be considered to have qualified in the examination unless he/she also obtains at least 30 percent marks in Viva-Voce and failure in or absence from Viva-Voce shall mean that the candidate has failed to qualify for appointment and his/her name will not be included in the merit list.

NOTE - 11: THERE IS NO PROVISION OF GRACE MARKS.

PAPER: _____ ENGLISH ESSAY _____ (100 MARKS)

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

Candidates are expected to reflect comprehensive and research based knowledge on a selected topic. Candidate's articulation, expression and technical treatment of the style of English Essay writing will be examined.

PAPER: ENGLISH (PRECIS & COMPOSITION) (100 MARKS)

The examination in this subject will be based upon a paper carrying 100 marks to Test the candidate's abilities to handle Precis Writing, Reading Comprehension, Sentence Structuring, Translation, Grammar and Vocabulary, etc.

I. Precis Writing (20 marks)

A careful selected passage with an orientation of generic understanding and enough flexibility for compression shall be given for précising and suggesting an appropriate title. Out of the total 20 marks allocated to this question, 15 shall go to précising the text and 5 to suggesting the title.

II. Reading Comprehension (20 marks)

A carefully selected passage that is rich in substance but not very technical or discipline-specific shall be given, followed by five questions, each carrying 4 marks.

III. Grammar and Vocabulary (20 marks)

Correct usage of Tense, Articles, Prepositions, Conjunctions, Punctuation, Phrasal Verbs, Synonyms and Antonyms etc.

IV. Sentence Correction (10 marks)

The sentences shall be given each having a clear structural flaw in terms of grammar or punctuation. The candidates shall be asked to rewrite them with really needed correction only, without making unnecessary alterations. No two or more sentence should have exactly the same problem, and 2-3 sentences shall be based on correction of punctuation marks.

V. Grouping of Words (10 marks)

A random list of twenty words of moderate standard (neither very easy nor utterly unfamiliar) shall be given, to be grouped by the candidates in pairs of those having similar or opposite meaning, as may be clearly directed in the question.

VI. Pairs of Words (10 marks)

Ten pairs shall be given of seemingly similar words with different meanings, generally confused in communication, for bringing out the difference in meaning of any five of them by first explaining them in parenthesis and then using them in sentences.

VII. Translation (10 marks)

Ten short Urdu/Sindhi sentences involving structural composition, significant terms and

figurative/idiomatic expressions shall be given, to be accurately translated into English.

SUGGESTED READINGS

S.No.	Title	Author
1.	English Grammar in Use	Raymond Murphy (Cambridge University Press).
2.	Practical English Usage	M.Swan (Oxford University Press).
3.	The Little, Brown Handbook	H. Ramsey Flower & Jane Aaron (The Little, Brown & Co; Harper Collins.)
4.	A University English Grammar	R. Quirk & S. Greenbaum (ELBS; Longmans)
5.	Write Better, Speak Better	Readers Digest Association.
6.	Modern English in Action	Henry Christ (D.C. Heath & Co.)

هن ٻيٻر ۾ اميدوار کان ٻوليءَ جي بنيادي ڄاڻ، ٻولي جي درست استعمال، واحد جمع، ضد، اشتقاق وغيره سان گڏ صورتخطي جا مسئلا، گرامر جي بنيادي ڄاڻ ۽ تشريح بابت سوال پڇيا ويندا۔
ترجميڪاري جي فن بابت پڻ اميدوار کي معلومات هجڻ ضروري آهي. اميدوار کان ڪجهه جملن جو سنڌي مان انگريزي يا انگريزي مان سنڌي ۾ ترجمو ڪرايو ويندو.

▪ گرامر

(الف) اٺ لفظ ۽ انهن جو استعمال ۽ فعل جون صورتون

(ب) بيهڪ جو نشانين ۽ ضميري پڇاڙيون

▪ مضمون

▪ شاعري

▪ پهاڪا

▪ ضد

▪ واحد، جمع

▪ مذڪر، مونث

▪ اشتقاق.

▪ چوڻيون

▪ ترجمو

تياري لاءِ مددي ڪتاب.

بشير احمد جوکيو

ڊاڪٽر نواز علي شوق

شمس الدين عرساڻي

ڊاڪٽر عبدالڪريم سنديلو

ممتاز مهر

▪ نور سنڌي گرامر

▪ هپڪار

▪ چار مقالا

▪ پهاڪن جي پاڙ

▪ ويچار

▪ اس پرچہ میں امیدوار سے زبان کی بنیادی ماہیت اور مواخذ کے بارے میں پوچھا جائیگا، جبکہ صرف و نحو کی بنیادی معلومات بھی لازمی ہے، اسکے علاوہ امیدوار کے لئے یہ بھی لازم ہوگا کہ وہ انگریزی سے اردو اور اردو سے انگریزی میں ترجمے کا فن جانتا ہو۔ مندرجہ ذیل عنوانات خاص طور پر اس پرچہ کا حصہ ہونگے۔

(1) قواعد (صرف و نحو)

- (الف) اسم کی اقسام تعریف مع امثال
- (ب) فعل کی اقسام تعریف مع امثال
- (ج) متضاد الفاظ
- (د) واحد و جمع
- (ه) املا کا درست استعمال
- (و) مرکز و مومنت
- (ز) اصطلاحات

(2) شاعری

- (الف) میر تقی میر
- (ب) مرزا اسد اللہ خاں غالب
- (ج) علامہ اقبال
- (د) فیض احمد فیض

(3) نثر مصامین - خاکے - افسانے

- (الف) سر سید احمد خان، رسم و رواج کی پابندی کے نقصانات
- (ب) الطاف حسین حالی: روزمرہ محاورہ
- (ج) مولوی عبدالحق: نام دیومالی
- (د) مختار مسعود: مینار پاکستان
- (و) پطرس بخاری: میل اور میں۔
- (و) منشی پریم چند: بڑی بھائی صاحب
- (ز) غلام عباس: اردو کورٹ
- (ح) سعادت حسن منٹو: اندھا قانون

(4) مضمون تحریر کیجئے:

- (الف) ادب و ثقافت
- (ب) سائنس و ٹیکنالوجی
- (ج) سوشل سائنسز
- (د) میڈیا سائنسز

(5) انگریزی سے اردو ترجمہ

(A) Extract (S) from National English Dailies.

مجوزہ کتابیں۔

- | | |
|---------------|--------------------|
| مولوی عبدالحق | (1) قواعد اردو |
| فاروق چوہدری | (2) اردو آموز |
| ابوالیث صدیقی | (3) جامع القواعد |
| ڈاکٹر ابوبکر | (4) ترجمہ کے مباحث |

PAPER: GENERAL SCIENCE & ABILITY (100 MARKS)**Part-I (General Science) 60 Marks****I. Physical Sciences**

- **Constituents and Structure:**-Universe, Galaxy, Light Year, Solar System, Sun, Earth, Astronomical System of Units.
- **Process of Nature:** - Solar and Lunar Eclipses, Rotation and Revolution, Weather Variables (Global Temperature, Pressure, Circulation, Precipitation, Humidity) and Weather Variations.
- **Natural Hazards and Disasters:** - Earth Quake, Volcanic Eruption, Tsunami, Floods, Avalanche, Travelling Cyclone (Tropical Cyclone, Middle Latitude Cyclone and Tornadoes), Drought, Wildfire, Urban Fire, Disaster Risk Management.
- **Energy Resources:** - Sources of Energy (Renewable i.e. LED Energy, Solar Energy, Wind Energy and Non-Renewable Energy conservation and its sustainable use.
- **Atomic Structure, Chemical Bonding, Electromagnetic Radiations.**
- **Modern Materials/Chemicals:** - Ceramics, Plastics, Semiconductors, Antibiotics, Vaccines, Fertilizers, Pesticides.

II. Biological Sciences

- **The Basis of Life:** - Cell Structures and Functions (Subcellular Organelles such as Nucleus, Mitochondria and Ribosomes).
- **Biomolecules:** - Proteins, Lipids, Carbohydrates and Enzymes.
- **Plant and Animal Kingdom:** - A brief survey of plant and animal kingdom to pinpoint similarities and diversities in nature.
- **A Brief Account of Human Physiology.**
- **Common Diseases and Epidemics:** - Polio, Diarrhea, Malaria, Hepatitis, Dengue their Causes and Prevention.
- **New Model Concept of Producing BIO Fuel Method**

III. Environmental Science

- **Environment:** - The Atmosphere (Layered Structure and Composition), Hydrosphere (Water Cycle, Major Water Compartments), Biosphere (Major Biomes) and Lithosphere (Minerals and Rocks, Rock Types, Plate Tectonics).
- **Atmospheric Pollution:** - Types, Sources, Causes and effects of major air pollutants (CO_x, Particulate Matter, NO_x, SO_x, Tropospheric Ozone, Volatile Organic Compounds, Dioxins). Regional and Global air pollution issues (Acid-rain, Ozone Depletion, Greenhouse Effect and Global Warming). International agreements on air pollution control (Montreal Protocol and Kyoto Protocol).
- **Water Pollution:**- Types, sources, causes and effects of major water pollutants (Synthetic Organic Chemicals, Oxygen Demanding Wastes, Plant Nutrients, Thermal Pollution, Infectious Agents, Sediments, Radioactivity, Heavy Metals and Acids). Drinking water quality and standards.
- **Land Pollution:** - Solid waste management and disposal.

- Role of Remote Sensing and GIS in Environmental Science.
- Population Planning.

IV. Food Science

- **Concept of Balance Diet:** - Vitamins, Carbohydrates, Protein, Fats and oil, Minerals, Fiber.
- **Quality of Food:-** Bioavailability of Nutrients, Appearance, Texture, Flavor, Quality of Packed and Frozen Food, Food Additives, Preservatives and Antioxidants
- **Food Deterioration and its Control:** - Causes of Food Deterioration, Adulteration, Food Preservation.

V. Information Technology

- **Computer (Hardware & Software Fundamentals);** I/O Processing and data storage, Networking & Internet Standards, Application and business Software, Social Media Websites, Information Systems, Fundamentals of artificial intelligence.
- **Telecommunications:** - Basics of Wireless Communication (Mobile, Satellite, Surveillance and GPS and Fiber Optic etc.

Part-II (General Ability)

40 Marks

VI. Quantitative Ability/Reasoning

- Basic Mathematical Skills.
- Concepts and ability to reason quantitatively and solve problems in a quantitative setting.
- Basic Arithmetic, Algebra and Geometry (Average, Ratios, Rates, Percentage, Angles, Triangles, Sets, Remainders, Equations, Symbols, Rounding of Numbers
- Random Sampling

VII. Logical Reasoning and Analytical Reasoning/Ability

- **Logical Reasoning** includes the process of using a rational, systematic series of steps based on sound mathematical procedures and given statements to arrive at a conclusion
- **Analytical Reasoning/Ability** includes visualizing, articulating and solving both complex and uncomplicated problems and concepts and making decisions that are sensible based on available information, including demonstration of the ability to apply logical thinking to gathering and analyzing information.

VIII. Mental Abilities

- **Mental Abilities Scales** that measures specific constructs such as verbal, mechanical, numerical and social ability.

SUGGESTED READINGS

S. No.	Title	Authors
1.	Asimov's New Guide to Science 1993	Isaac Asimov
2.	Science Restated: Physics and Chemistry for the Non-Scientist 1970	Harold Gomes Cassidy
3.	Eminent Muslim Scientists 1991	S. Fakhre Alam Naqvi
4.	Exploring Life Science 1975	Walter A. Thurber, Robert E. Kilburn, Peter S. Howell
5.	Exploring Physical Science 1977	Walter A. Thurber, Robert E. Kilburn, Peter S. Howell
6.	Principles of Animal Biology 2011	Lancelot Hogben
7.	The Impact of Science on Society 2005	Isaac Asimov, A. S. a. N. A. S. a.
8.	Fundamentals of Forensic Science 2010	Max M. Houck, Jay A. Siegal
9.	Forensic Science Fundamentals & Investigation 2008	Anthony J. Bertino
10.	Physical Geography 2013	Harm J. de Blij, Peter O. Muller, James E. Burt, Joseph A. Mason
11.	Physical Geography-Science and Systems of the Human Environment 2009	Alan H. Strahler, Arthur N. Strallar.
12.	Introduction to Information Technology 2005	T. T. L. Education Solutions Limited, Ill.
13.	Management Information Systems 2014	Ken Sousa, Effy Oz
14.	Fundamentals of Telecommunications 2005	Roger L. Freeman
15.	Basics of Environmental Science 2002	Michael Allaby
16.	Food Science 1998	Norman N. Potter, Joseph H. Hotchkiss
17.	Environmental Science: Systems and Solutions. 5 th ed. 2013	Michael L. McKinney, Robert Schoch and Logan Yonavjak
18.	Environmental Science: A Global Concern 2012	William P. Cunningham, Barbara Woodworth Saigo
Books for Logical Reasoning		
19.	Logical Reasoning	Rob P. Nederpelt, Farouz D. Kamareddine
20.	Elements of Logical Reasoning	Jan Von Plato
21.	Reasoning Builder for Admission and Standardized Test	Staff of Research Education
22.	Test of Reasoning	Thorpe
23.	Mental Ability	Dr. Lai & Jain
24.	The Brain Book: Know Your Own Mind and How to Use it	Edgar Thorpe

PAPER: CURRENT AFFAIRS & PAKISTAN AFFAIRS (100 MARKS)**Part-I (Current Affairs)**

Candidates will be expected to display such general knowledge of history, politics and International Affairs, as deemed necessary to interpret current affairs.

I. Pakistan's Domestic Affairs

- Political
- Economic
- Social

II. Pakistan's External Affairs

- Pakistan's relations with its Neighbors (India, China, Afghanistan, Russia)
- Pakistan's relations with the Muslim World (Iran, Saudi Arabia, Indonesia, Turkey)
- Pakistan's relations with the United States
- Pakistan's relations with Regional and International Organizations (UN, SAARC, ECO, OIC, WTO, CW)

III. Global Issues

- International Security
- International Political Economy
- Human Rights
- Environment: Global Warming, Kyoto Protocol, Copenhagen Accord
- Population: world population trends, world population policies
- Terrorism and Counter Terrorism
- Global Energy Politics
- Nuclear Proliferation and Nuclear Security
- Nuclear Politics in South Asia
- International Trade (Doha Development Round and Bali Package)
- Cooperation and Competition in Arabian Sea, Indian and Pacific Oceans.
- Millennium Development Goals, Current Status,
- Globalization
- Middle East Crisis
- Kashmir Issue
- Palestine Issue

Part-II (Pakistan Affairs)

- I. Ideology of Pakistan—definition and elucidation, historical aspects: Muslim rule in the Sub-Continent, its downfall and efforts for Renaissance. Movements for reforms— Shaikh Ahmad Sarhindi, Shah Waliullah, Sayyid Ahmad Shaheed, Aligarh, Deoband, Nadwah, and other educational institutions—Sindh Madrassah and Islamia College Peshawar. Ideology of Pakistan in the light of Speeches and statements of Allama Iqbal and Quaid- i Azam Muhammad Ali Jinnah.
- II. Land and people of Pakistan— Geography, Society, Natural resources, Agriculture, Industry and education with reference to characteristics, trends and problems.
- III. Pakistan and Changing Regional Apparatus
- IV. Nuclear Program of Pakistan, its Safety and Security: International Concerns
- V. Regional Economic Cooperation (SAARC, ECO, SCO) and the Role of Pakistan
- VI. Civil-Military Relations in Pakistan
- VII. Economic Challenges in Pakistan
- VIII. Non-Traditional Security Threats in Pakistan: Role of Non-State Actors
- IX. Pakistan's Role in the Region
- X. Palestine Issue
- XI. Changing Security Dynamics for Pakistan: Challenges to National Security of Pakistan
- XII. Political Evolution Since 1971
- XIII. Pakistan and US War on Terror
- XIV. Foreign Policy of Pakistan Post 9/11
- XV. Evolution of Democratic System in Pakistan
- XVI. Ethnic Issues and National Integration
- XVII. Hydro Politics ; Water Issues in Domestic and Regional Context
- XVIII. Pakistan's National Interest
- XIX. Challenges to Sovereignty
- XX. Pakistan's Energy Problems and their Effects
- XXI. Pakistan's Relations with Neighbors excluding India
- XXII. Pakistan and India Relations Since 1947
- XXIII. Kashmir Issue
- XXIV. The war in Afghanistan since 1979 and its impact on, and challenges to Pakistan, in the Post 2014 era.
- XXV. Proxy Wars: Role of External Elements
- XXVI. Economic Conditions of Pakistan, the Most Recent Economic Survey, the Previous and Current Budgets, and the Problems and Performance of Major Sectors of Economy.
- XXVII. The Recent Constitutional and Legal Debates, the Latest Constitutional Amendments and Important Legislations, Legal Cases and the Role of Higher Courts.

XXVIII. The Prevailing Social Problems of Pakistan and the Strategies to Deal with Them,
Poverty, Education, Health and Sanitation.

SUGGESTED READINGS

S.No.	Title	Author
1.	Pakistan Foreign Policy 1947-2005: Concise History, 2011	Abdul Sattar,
2.	Issue in Pakistan's Economy, 2010	Akbar S. Zaidi
3.	Pakistan: A Hard Country, 2012	Anatol Lieven
4.	Government & Politics in South Asia, 6th ed 2009	Baxter, Malik, Kennedy & Oberst,
5.	Introduction to International Political	David Balaam & Bradford Dillman
6.	International Organization (Second Edition) 2012	Volker Rittberger, Bernhard Zangl and Andress Kruck
7.	The Age of Deception: Nuclear Diplomacy Treacherous Times (2011)	Mohamed Elbaradei
8.	International Relations, 2012	Joshua Goldstein
9.	World Politics: Trends & Transformation 2011	Kegley & Blanton
10.	Pakistan Beyond the Crisis, 2011	Maleeha Lodhi
11.	Globalization in Question, 2009	Paul Hirst
12.	International Political Economy: Interests Institutions in the Global Economy, 2010	Thomas Oatley
13.	Politics and Change in the Middle East, 10 th Ed., Pearson, 2012.	Andersen, Seibert, and Wagner
14.	Eating Grass: The Making of the Pakistan Bomb, (2012)	Feroz Khan
15.	World Times Magazine	By Jahangir
16.	Federalism and Ethnic Conflict Regulation in India and Pakistan.	Adeney, Katharine. , New York: Palgrave Macmillan, 2007.
17.	Labor, Democratization and Development in India and Pakistan.	Candland, Christopher, New York: Routledge, 2007.
18.	Perception, Politics and Security in South Asia: The Compound Crisis in 1990.	Chari, P.R. at al, New York: Routledge, 2003.
19.	The Future of Pakistan.	Cohen Stephen P. et al. Washington: Brookings Institute Press, 2011.
20.	Frontline Pakistan: The Struggle with Militant Islam.	Hussian, Zahid. New York: I.B.Tauris, 2007.
21.	Modern South Asia: History, Culture, Political Economy.	Jalal, Aisha and Bose, Sugata. New York: Routledge, 1998.
22.	Democracy and Authoritarianism in South Asia.	Jalal, Aisha, Cambridge: Cambridge University Press, 1995.

23.	Conflict Between India and Pakistan: an Encyclopedia.	Lyon, Peter. California: ABC-CLIO, 2008.
24.	Back to Pakistan: A Fifty Year Journey.	Mass, Leslie Noyes. Plymouth: Rowman & Littlefield Publishers, 2011.
26.	Judging the State: Courts and Constitutional Politics in Pakistan.	Newberg, Paula R. Cambridge: Cambridge University Press, 1995.
27.	Pakistan: Manifest Destiny.	Qureshi, Atiff. London: Epic Press, 2009.
28.	Pakistan, America, and the Future of Global Jihad.	Riedel, Bruce. Deadly Embrace: Washington: Brookings Institute Press, 2011.
29.	Kashmir in Conflict: India, Pakistan and the Unending War.	Schofield, Victoria. New York: I.B.Tauria, 2003.
30.	Islamic Law and the Law of Armed Conflict: The Armed Conflict in Pakistan.	Shah, Niaz A. New York: Routledge, 2011.
31.	Making Sense of Pakistan.	Shaikh, Farzana. New York: Colombia University Press, 2009.
32.	A Brief History of Pakistan.	Wynbrandt, James. New York: Infobase Publishing, 2009.
33.	Powering Pakistan: Meeting Pakistan Energy Needs in 21 st Century.	Robert M. Hathaway and Michael Gugelman
34.	Pakistan's Energy Sector: From Crisis to Crisis-Breaking the Chain	Zaid Alahdad

35. Economy of Modern Sindh (opportunities Lost and Lessons for the future.

Ishrat Hussain, Aijaz A.Qureshi
Nadeem Hussain

PAPER: ISLAMIC STUDIES (100 MARKS)

I. Introduction of Islam.

- Concept of Islam.
- Importance of Deen in Human Life.
- Difference between Deen and Religion.
- Distinctive Aspects of Islam.
- Islamic Beliefs & its Impact on Individual & Society and the Fundamental of Islam
- Islamic Worships: Spiritual, Moral and Social Impact.

II. Study of Seerah of Prophet Mohammad (PBAH) as Role Model for:-

- Individual
- Diplomat
- Educator
- Military Strategist
- Peace Maker

III. Human Rights & Status of Woman in Islam.

- Human Rights and Status of Woman in Islam
- Dignity of Men and Women

IV. Islamic Civilization and Culture:

- Meanings and the Vital Elements
- Role of Civilization in Development of Human Personality and Communities
- Distinctions of Islamic Civilization (Tauheed, Spiritualism, Dignity of Man, Equality, Social Justice, Moral Values, Tolerance, Rule of Law)

V. Islam and World.

- Impact of Islamic Civilization on the West and Vice Versa
- The Role of Islam in the Modern World.
- Muslim World and the Contemporary Challenges.
- Rise of Extremism.

VI. Public Administration and Governance in Islam

- Concept of Public Administration in Islam
- Quranic Guidance on Good Governance
- Concept of Governance and its Applications in the light of Quran, Sunnah and Fiqh.
- Governance Structure in Islam i.e. (Shura, Legislation, Sources of Islamic Law)
- Governance under Pious Khelifat
- Particular letters of Hazrat Umar (R.A) and Hazrat Ali (R.A) to different Authority.
- Responsibilities of Civil Servants
- System of Accountability in Islam

VII. Islamic Code of Life.

- Salient Features of Islamic Systems, Social System, Political System, Economic System, Judicial System, Administrative System.
- Procedure of Ijmah and Ijtehad

REQUIRED READINGS

Sr. No.	Title	Author
1.	Introduction of Islam	Dr. Hamidullah
2.	Islam: its meaning and Message	Khurshid Ahmad
3.	Islam: The Misunderstood Religion	Muhammad Qutub
4.	Islam at the crass road	MohammadAsad
5.	Islam and the Economic Challenge	Umer Chapra
6.	A brief Survey of Muslim Science and Culture	M. Abdur Rahman
7.	Administrative Development an Islamic Perspectiv	Muhammad Al-Buraey
8.	Quranic Sciences	Afzalur Rahman
9.	Islamization of Pakistan	Iqbal Zafar
10.	Islamic Law and Constitution	Abul A' la Mawdudi,
11.	Insan e Kamil	Dr Khalid Alvi
12.	Islami Tehzeeb Kay Chund Darakhshan Pehloo	Mustafa Sabbai
13.	Islam Aur Tahzeeb -e -Maghrib Ki Kash Makash	Dr Muhammad Ameen,
14.	Aurat Maghrib aur Islam	Serwat Jamal Asmaui
15.	Seerat-un-Nabi Vol. I	Shibli Nu'mani
16.	Islam and Secular Mind	Edited by Tarik Jan
17.	Khilafat-o-Malookiat	Abul A' la Mawdudi,

RECOMMENDED READINGS

1.	Towards Understanding Islam	Abul A' la Mawdudi,
2.	Ideals and Realities of Islam	Hussain Nasr,
3.	Administrative Development; an Islamic Perspective, KP.L. London	Alburacy Muhammad A.
4.	Arab Administration	Hussain Shah
5.	The Islamic Republic : Politics, Law and Economy	Hassan Dr. S. Farooq

6.	Studies in Muslim Political Thoughts and Administration	Sherwani, H.K.S.
7.	Reconstruction of Religious Thoughts in Islam	Allama Iqbal
8.	Islamic Political System in the Modern age: Theory and Practice	Ahmad Manzooruddin
9.	Sovereignty-Modern and Islamic:	Ilays Ahmad
10.	Islam in Transition: Muslim Perspectives	Donohue J, John A. and Esposito L. John (eds)
11.	Islam Aik Nazar Main	Sudderud Din Islahi
12.	IslamiNazria e Hayat	Khurshid Ahmad
13.	Islami Nizam e Zindgi aur us kay Bunyadi Tasswor	Abul Aala Maudoodi
14.	Jadah o Manzil	Seyyed Kotub
15.	Islam ka Nizam e Hakoomat	Maulana Hamid ul Ansari
16.	Islami Nizam	Dr Yousof Qerzawi,
17.	Bonyadi Haqooq	Muhammad Salahuddin
18.	Islam Ka Muashi Nizam	Justice Taqi Usamani,
19.	Tahzeeb o Tamaddon e Islami	Rasheed Akhter Nadvi
20.	First Principle of Islamic Economics	Abul A' la Mawdudi
21.	Islamic Civilization Foundations Belief & Principles	Abul A' la Mawdudi
22.	Workship in Islam	Abul A' la Mawdudi
23.	Let us be Muslims	Khurram Murad
24.	Women and Social Justice; an Islamic Paradigm	Prof. Dr. Anis Ahmad

PAPER: Comparative Study of Major Religions (For Non Muslims) (100 MARKS)
 (Alternative Paper in Lieu of the Compulsory Islamic Studies)

I. Introduction

- Definition(s) of religion
- Emergence of the study of religion as a discipline
- Theological and academic study of religion
- An overview of religious landscape of the World

II. Hinduism

- Historical Background
Indus valley civilization, Aryan invasion theory, Vedic Dharma, Brahmanism
- Scriptures:
Śruti: Vedas, Upanishads, *Smṛiti*: Manu Smṛiti, Sutras, Puranas, Great epics: Ramayana, Mahabharata
- Hindu Doctrines:
Dharma, Vedanta, Karma, Transmigration of Souls, Moksha (Liberation)
- Ways to Liberation:
Kama marga (Works/Rituals), Jnana marga (Wisdom), Bhakti marga (Devotion)
- Hindu gods:
Brahma, Vishnu, Shiva, Trimurti, other gods and divinities
- Major Hindu Sects:
Vaishnavism (Manifestation avatars), Saivism (Supreme God & Phallic worship), Saktism (Goddess worship)
- Hindu society:
Caste System, Ashramas (Stages of life)
- Hinduism in the Modern World
19th century reform and revival movements, Contemporary Hindu Tendencies and movements

III. Buddhism

- Historical Background
Life of Gautama Buddha, Formation and spread of Buddhism, Rivalry between Brahmanism and Buddhism
- Scriptures:
Tripitaka: Sutta Pitaka, Vinaya Pitaka, Abhidhamma Pitaka
- Teachings and Doctrines
Three Jewels of Buddhism: Buddha, Dhamma, Sangha, The four noble truths, Eight fold Path
- Buddhist Sects:
Theravadas (Hinayana), Mahayana, other schools and sects
- Buddhism in the Modern world

IV. Judaism

- A brief history of Jews and Judaism:
From Abraham to Moses, peace be upon them all, From Moses to establishment of Jewish rule, Destruction of Jerusalem and dispersion of Jews in the world,
- Jewish Scriptures:
Tanakh (The Torah, the Prophets, and the Writings), Mishnah and Talmud
- Articles of faith and basic teachings:
Ten Commandments, The thirteen principles of faith propounded by Moses Maimonides (1138-1204)
- Jewish holidays and festivals:
Yom Kippur (The Day of Atonement), Pesach (Passover), Sukkot (Tabernacles) Purim
- Jewish Worship:
Daily prayer, fasting, Sabbath
- Jewish sects and movements
Orthodox Judaism, Conservative Judaism, Reform Judaism, Zionism, Kabbalah, Hasidism

V. Christianity

- Historical background:
Jewish background of Christianity, Life and of Jesus Christ (Through the Four Gospels), Life and the role of Paul (Through the Letters of Paul), Formation and spread of the Christian Church, Christianization of the Roman Empire, Reform movement
- Scriptures:
The Holy Bible (Old Testament and New Testament)
- Basic Doctrines:
Original Sin, Incarnation of God, Crucifixion and Resurrection of Jesus Christ, Atonement, Trinity
- Christian Sects:
Catholicism, Eastern Orthodoxy, Protestantism
Sub-denominations: Lutherans, Reformed and Presbyterians, Anglicans, Baptists, Methodists, Unitarians
- Christian Festivals and Holidays:
Advent, Christmas, Easter, Pentecost
- Christian worship and Sacraments
Baptism, Eucharist, Communion, Lord's Supper, prayer, fasting, psalms, music,
- Christianity in the Modern Times
Encounter with modernity, modern theological trends, Missionary movement, Dialogue and relationship with other religions

VI. Islam

- Introduction and Historical Background
Islamic concept of religion, universality of religion and diversity of shari'ahs, *Sirah* (Life) of the Holy Prophet Muhammad, peace be upon him, The era of rightly guided caliphs of Islam
- Sacred Scriptures:
The Holy Quran, Hadith
- Basic Doctrines and Creed:
Tawhid (Oneness of God), *Risalah* (Belief in Prophets and finality of the prophet-hood with the Prophet Muhammad), *Akhirah* (Belief in Hereafter and the final reckoning by Allah the

Almighty), Belief in angels, previous scriptures, predestination and human responsibility before God, infallibility of the Quran

- **Five Pillars of Islam:**
Utterance of *Shahadatayn* (To proclaim the Oneness of Allah and that Prophet Muhammad is his messenger, *salah* (five daily prayers), *zakah* (compulsory charity), *sawm* (fasting in the month of Ramadan) and Hajj (pilgrimage to Makkah who can afford travelling to it)
- **Other Teachings of Islam**
Equality of mankind, simplicity, spiritual purity and bodily hygiene, patience, contentment, moderation, social justice, Jihad, tolerance towards other religions,
- **Sects and Schools**
Sunnis (mainstream Muslims), Shi'ahs (Special devotion for Hazrat Ali and Family of the Prophet), Khawarij (literalists), Mu'tazilah (rationalists)
- **Contemporary Islamic movements and tendencies:**
Iqwan al Muslimun (Muslim Brotherhood), Jama'at-i-Islami, Tablighi Jama'at, Salafi movement, Fethullah Gulen movement in Turkey, Iranian revolution, extremist groups.

SUGGESTED READINGS

S.No.	Title	Author
1.	Approaches to the Study of Religion, 1999	Peter Connolly (ed.)
2.	The Penguin Hand Book of World's Living Religions, 2010.	John R. Hinnells (ed.)
3.	Dunya Kay Baray Mazahib (Major Religions of the World)	Imadul Hasan Azad Faruqi
4.	Hinduism: A Short Introduction, 2006.	Klaus K. Klostermaier
5.	Exploring Buddhism, , 2012.	Christmas Humphreys
6.	Judaism: A Short Introduction, 1999.	Lavinia and Dan Cohn-Sherbok
7.	Christianity: An Introduction, 2006.	Alister E. McGrath
8.	The Messenger: The Meanings of the Life of Muhammad, 2008	Tariq Ramadan
9.	Ideals and Realities of Islam, 1993.	Seyyed Hossein Nasr
10.	Towards Understanding Islam, 1992.	Syed Abul 'Ala Maududi

PAPER: ACCOUNTANCY & AUDITING (200 MARKS)

Paper – I (MARKS-100)

(A) Financial Accounting (50 Marks)

- I. **Fundamental Accounting Principles, Concepts, Assumptions and Conventions:** Nature and Scope of Accounting, Accrual/Matching Concept, Consistency of Presentation and Comparability, True and Fair View, Neutrality, Materiality, Prudence, Completeness, Understandability and Usefulness, Going Concern, and Substance over Form.
- II. **Accounting Cycle/Process and Financial Statements:** Transactions and/or Events, General Journal, General Ledger, Trial Balance (Unadjusted), Adjusting Entries and Adjusted Trial Balance, Work Sheet, Financial Statements including Income Statement, Statement of Financial Position (Balance Sheet), Statement of Cash Flows and Statement of Changes in Equity in accordance with the Financial Reporting Framework as specified by International Accounting Standard Board (IASB) through IFRSs/IASs, and by Securities and Exchange Commission of Pakistan through Companies Ordinance 1984, and Closing and Reversing Entries.
- III. **Attributes, and Significance of Accounting Information:** Attributes of Accounting Information, Information/Reporting Requirements of various Users/Stakeholders of Financial Statements including External (Investors/Shareholders, Creditors, Suppliers, Lenders/Financiers, Government Agencies etc.) and Internal (Board of Directors, Partners, Managers, Employees etc.) Stakeholders.
- IV. **Accounting for common Legal Forms of a Business:** Accounting Principles and Financial Statements of Sole-proprietorships, Partnerships and Joint Stock Companies including Banking Companies (Excluding Advanced Topics like Amalgamation, Capital Reduction, Consolidation etc.)
- V. **Accounting for Associations Not-for-profit, and for Public Sector:** Accounting Principles and Financial Statements - of Associations Not-for-profit, and - of Public Sector Entities as per Standardized Financial Reporting Framework provided by International Public Sector Accounting Standards (IPSAS) Board and Practices being followed in the country.
- VI. **Accounting for Non-current Tangible Assets:** Fundamental Concepts and Principles concerning Non-current Assets: Cost; Depreciable Amount; Depreciation; Fair Value; Property, Plant and Equipment; Residual Value; and Useful Life. Depreciation Methods and their Application (as specified by International Accounting Standards Board): Straight-line Method; Reducing Balance Method; Number of Units Produced and basic know-how of other Methods/Techniques being commonly used by the Industry.
- VII. **Fundamental and Technical Analysis of various Forms of Organizations:** Financial Statements' Analysis including both Horizontal (Measuring Change) and Vertical (Ratio) Analysis including Liquidity Ratios, Activity Ratios, Debt Ratios, Profitability Ratios and Market Ratios; Technical and Industry Analysis.

XI. Cost and Managerial Accounting (50 Marks).

- VIII. **Fundamental Cost Accounting Principles and Concepts:** Nature and Scope of Cost and Managerial Accounting; Cost Concepts, Elements and Classification; Underlying Differences among Financial, Cost, and Management Accounting.
- IX. **Accounting for Material, Labour and Factory Overheads (FOH):** Recognition and Valuation Principles for Material Inventory, and Methods to control Material Inventory; Calculation/Measurement and Accounting for Payroll for all forms of Labour, Time Rate and Piece Rate Systems; Commonly used Group Incentive Schemes; Factory Overhead Costs and FOH Rate, Departmentalization of FOH Costs, their Allocation, Apportionment and Reapportionment (Primary and Secondary Distributions), Methods for Secondary Distribution including both Repeated Apportionment/Distribution and Algebraic Method.
- X. **Costing for Specific Jobs, and Process Costing:** Nature of a Specific Job, and Job-order Costing; Process Flow and Process Costing by the use of Cost of Production Report (CPR).
- XI. **Management Accounting for Planning, Decision-making and Control:**

Budgeting and its Use: Meaning and Nature of a Budget; Major Forms of a Budget including Production and Sales Budget, Cash Budget, Flexible Budgets, Zero-based Budget, Master Budget etc.

Break-even Analysis: Difference between Marginal and Absorption Costing Techniques; Concept of Relevant Cost; Application and Use of Contribution Margin and other Concepts for Planning and Decision-making (under Break-even Analysis)

Variance Analysis: Meaning and Use of Standards and Variances; Major Classification of Variances including Material, Labour and FOH Variances, and their Computation.

PAPER – II (MARKS 100)

(A) Auditing (40 Marks).

- I. **Fundamental Auditing Principles and Concepts:** Audit and Auditing, True and Fair View, Audit Assertions, Reasonable Assurance, Documentation and Audit Evidence, Audit Program, Audit Risks, Computer Information Systems (EDP Systems) and Computer-assisted Audit Techniques (CAAT), Inspection, Fraud, Going Concern, Audit Materiality, Misstatement, Governance and Premise, Tests of Control and Substantive Procedures.
- II. **Audit Considerations, Dimensions and Conduct:** Internal Control System and Internal Audit, Internal VS External Audit, Responsibility for Financial Statements, Audit Planning, Scope of an Audit, Objectives of an Audit, Inherent Limitations of an Audit, Risk Assessment and Management, Internal Audit and Corporate Governance,

Classification of Audit, Qualities of an Auditor, Auditing in Computer Information Systems (EDP Systems) and Computer-assisted Audit Techniques, General Auditing Principles and Techniques commonly applicable to various Types of Undertakings including Merchandizing, Manufacturing, Banking, Insurance, Investment Entities etc., Audit Performance and Audit Completion.

- III. **Role and Responsibilities of an Auditor:** Auditor's professional and legal Rights, Responsibilities & Duties, and Liabilities; Auditor's Opinion and Report, and their classification (Types); - as specified under the Companies Ordinance 1984, and in the handbook of IFAC.

(B) Business Taxation (30 Marks).

- IV. **Tax Structure, and Fundamental Concepts vis-à-vis Income Tax in Pakistan:** Tax Structure in Pakistan; Fundamental Definitions/Terminologies defined under Section 2 of the Income Tax Ordinance 2001.

- V. **Income Tax and Sales Tax Principles, and their Application:** Selected Provisions from Income Tax - Income for Tax Purposes [Section 4, 9 & 10], Heads of Income [Section 11], Tax Payable on Taxable Income [First Schedule to the Ordinance], Salary Income and Taxation [Sections 12 to 14], Income from Property [Sections 15 & 16], Income from Business [Sections 18 to 20], Capital Gains [Sections 37 to 38], Income from other sources [Section 39, 40, 89, 101(6), 111], Tax Credits [Sections 61 to 65], Taxation of Individuals, AOPs and Companies [Sections 86, 92, 94], Due Date for Payment of Tax [Section 137], Deduction of Tax at Source/With-holding Tax [Sections 147, 149, 153, 155] and related Income Tax Rules 2002.

Selected Definitions and Provisions from Sales Tax – Scope of Tax [Section 3], Exempt supply [Section 2(11)], Goods [Section 2(12)], Input Tax [2(14)], Registered person [Section 2(25)], Supply [Section 2(33)], Tax [Section 2(34)], Retail Price and Retailer [Section 2(27) & 2(28)], Taxable Activity [Section 2(35)], Taxable Supply [Section 2(41)], Tax Fraction [Section 2(36)], Tax Period [Section 2(43)], Time of Supply [Section 2(44)], and Determination of Tax Liability [Section 7].

(C) Business Studies, and Finance (30 Marks).

- VI. **Business Studies:** Nature and Scope of a Business Entity, Contemporary Challenges posed to a Business; Common Legal Forms of a Business Entity – Sole-proprietorship, Partnership, Joint Stock Company, their Features, Formation and Management; Business Combinations and their Scope; Business Cycle and its Implications; Role of Information Technology in Business.
- VII. **Finance:** Meaning, Nature and Scope of Finance, and Financial Management; Common Modes (Types) of Business Finance – Short-, Medium-, and Long-term Financing; Nature and Scope of Financial Markets and Institutions; Features and Classification of Financial Markets; Financial Management Techniques for Decision-making: Time Value of Money, Cost of Capital and Capital Budgeting Techniques.

SUGGESTED READINGS

S.No.	Title of Books	Author
ACCOUNTING PAPER-I (100 MARKS)		
1	Financial Accounting, and Intermediate Accounting	Kieso, Weygandt and Warfield
2	Fundamentals of Accounting Principles	Wild, Larson, Chiappetta
3	Accounting for Decision-making	Meigs, William and Haka
4	IFRSs / IASs	ICAP / IFAC
5	Principles and practice of Book Keeping and Accounts	Vickery, B.G
6	Financial Accounting	M. Hanif and A. Mukherjee
7	Principles of Accounting, and Advanced Accounting	Sohail Afzal
8	Principles of Accounting, and Advanced Accounting	M.A Ghani and Ejaz
9	Cost Accounting – Planning and control	Usry, Hammer, Matz
10	Managerial Accounting	Peter C. Brewer, Ray H. Garison, Eric W. Noreen.
11	Cost Accounting	Jain and Narang
12	Cost Accounting	Nisar ur Din.
ACCOUNTING PAPER – II (100 MARKS)		
13	Auditing- Principles and Techniques	S. K. Basu
14	Auditing	Dicksee, L.R
15	Practical Auditing	Spiecer and Pegler
16	Companies Ordinance 1984	SECP
17	Auditing	S. K. Millichamp, ELBS
18	Handbook of International Quality Control, Auditing, Review and Other Assurance	ICAP / IFAC
19	Auditing	M. Irshad
20	Advanced Auditing	Prof. Dr. Khuaja Amjad Seed
21	Income Tax Ordinance 2001	FBR
22	Introduction to Taxation / Synopsis of Taxes in Pakistan	Mirza Munawar Hussain
23	Law in Practice – Income and Sales Tax	Abdul Razzaq
24	Business Taxation	Ijaz Ali Waince
25	Principles of Managerial Finance	Lawrence J. Gitman
26	Fundamental of Financial Management	Van Horne, Wachowicz Jr. Bhaduri

S.No.	Title of Books	Author
27	Basic Business Finance	Hunt, Williams and Donaldson
28	Business Studies	Hall, Jones and Raffo
29	Foundations of Financial Markets and Institutions	Fabozzi, Modigliani, Jones and Ferri
30	Contemporary Business	Kurtz and Boone
31	Principles and Practice of Commerce	Stephenson
32	Introduction to Business	M. Saeed Nasir

PAPER: AGRICULTURE AND FORESTRY (100 MARKS)

Part-I Agriculture (50 Marks)

- I. **Concept of Integrated Agriculture:** Components of natural resources as bases for agriculture production (Land, Water, biological, Environmental, Solar, Energy)
- II. **Challenges in Pakistan's Agriculture:** Present scenario and future prospects. Analytical overview: issues and strategies for improvement of crop management, livestock management, fisheries, cottage industry, resource management and rural development. Institutions and policies: issues and options.
- III. **Elements of Climate and their Relationship with Crop Growth:** Farming Systems, biological nitrogen fixation, soil profile, structure and texture, soil fertility, soil erosion and conservation, water logging and salinity
- IV. **Genetic Improvement for Crop Production:** GMO crops, Seed production technology.
- V. **Horticulture:** Floriculture, landscaping, pests and diseases of agriculture crops and their control, integrated pest management.
- VI. **Rainfed and Irrigated Agriculture:** Agriculture mechanization, land tenure and land reforms, role of agriculture in national economy.

Part-II Forestry (50 Marks).

- I. Forest, range lands and wild life importance and significance
- II. Forest management and utilization, wood based industries in Pakistan, silviculture
- III. Range management and utilization
- IV. National and international forest wealth statistics
- V. Role of wildlife as value addition to forestry
- VI. Forest based wildlife reservations of Pakistan and their management, eco-tourism
- VII. Forestry, agroforestry, social forestry and forest biometrics
- VIII. Socio-economic and ecological impact of manmade forests
- IX. Watershed Management and role of forests in prevailing climate change dilemma
- X. National forest laws and policies at national level, biodiversity & environment.

SUGGESTED READINGS

S.No.	Title	Author
1.	Shaping the Future of Water for Agriculture	World Bank, USA
2.	Participatory Rural Development in Pakistan	Khan, M. H
3.	Agriculture in Pakistan	Khan M. H.

S.No.	Title	Author
4.	Economic Survey of Latest Years	
5.	Agric/Livestock/Machinery/Rural Developments Censuses of Latest Years	
6.	Fundamentals of Soil Science	Henry D. Foth
7.	Manual of Plant Production	Abdul Manan.
8.	Principles of Field Crop Production	Martin., J.H. & Leonard, W.H.
9.	Diseases of Field Crops	Dickson, J.G
10.	Irrigation Principles & Practices	Isrealson, O.W. Vaughn, E. Hansen.
11.	A Text Book of Plant Pathology	A.V.S.S. Sambamurti
12.	Breeding Field Crops	Poehlman
13.	The Principles of Agronomy.	Harris, Franklin Stewart
14.	Forest Types of Pakistan	Champion, H.G., S.K. Seth Seth and G.M.Khattak
15.	Manual of Silviculture for Pakistan	Champion, H.G., S.K. & Seth and G.M.Khattak
16.	Trees of Pakistan	M.I. Sheikh
17.	Range Management in Pakistan	M.A.A. Qureshi
18.	Comprehensive Forestry	B.A. Raza
19.	Farm Forestry in Pakistan,	M.A.A. Qureshi
20.	Forest Management	G.M. Khattak,
21.	Wildlife Ecology, Conservation and Management	A. R. E. Sinclair, J. M. Fryxell, G.Caughley
22.	Basics of Forestry & Allied Sciences	Dr. Masood A.A. Qureshi

PAPER: ANTHROPOLOGY (100 MARKS)

I. Anthropology

- Definition of anthropology, its historical development and recent trends

II. Social Anthropology

- Definition of culture, its characteristics and functions
- Relationship of anthropology with other social sciences
- Sub fields of anthropology that is Biological, archeological, linguistics
- **Institution of Family and Marriage**
(Definition, types, structure, functions, family organization)
- **Kinship and Social Organization**
(Definition, types, functions, kinship terminology etc)
- **Economic Organization:** (Definition, evolution, substantivism versus formalism, reciprocity, production, consumption, redistribution, barter and primitive economic systems)
- **Political organization:** (Definition, evolution of political system, characteristics of Band societies, tribal societies, Chiefdom, and State societies. Internal conflict theories, external conflict theories, origin of civilization, the politic of identity, ethnicity, nationalism modernism, post modernism etc)
- **Religion:** (Definition, evolution of primitive religions, functions of religion, comparison of divine religions and other world religions such as Hinduism, Buddhism, Jainism etc)
- **Contemporary human problems;** such as poverty, social inequality, political instability, population problems and ethnic violence and terrorism etc

III. Urban Anthropology

Rural-urban migration, expansion of cities, major environmental issues, and sanitation problems. Urbanization and development, establishment of slums and squatter settlements, refugees, Yankees, betties, gypsies, wars and conflict. Conversion of power from feudal to industrialists, institutionalization, education system, and change in the mode of production: agriculture to Capitalists' poverty: theories and remedies, psychological, cultural, economical, political, religious, physical, environmental, ecological, demographical, lingual, and city management. Conflict theory: Carl Marx, problems created by the mechanization and automation.

IV. Socio-Cultural Changes

Definitions of socio-cultural Changes, various Dimensions of Social Change, barriers in socio-cultural and psychological change. Motivational factors for change, Population pressure, diffusion of innovation, socio-religious barriers in accepting the innovation and new ideas. Media and Cultural Change, Dynamics of change in Pakistan: Trends and

Prospects

V. Ethnicity and race

Ethnic Groups and Ethnicity: Origin of race and theories; Ethnic Groups, Nations and Nationality; Ethnic Conflict; Degree of Social Variation; Rank Societies; caste and Class Societies; Racism and Inequality, Ethnicity and Inequality, and Social Stratification etc.

VI. Anthropological Theories

- Contributors: (Edward Burnett Taylor, Lewis Henry Morgan, James Frazer, Kari Marx, Edmund Leach, Franz Boas, Margaret Mead, Ruth Benedict, Alfred Kroeber, AR Radcliff-Brown, Malinowski, Clifford Geertz, Talal Asad, Akbar S Ahamd, ibne-Khaldoon, Shah Waliullah)
- Classical Theories (Degenerations, Evolutionism, Diffusions,
- Modern Theories Functionalism, Structural-functionalism, Class struggle, Structuralism, Historical Particularism, Feminism, Culture and personality)
- Current Trends in Anthropological Thoughts: (Post Modernism, Romanticism, Poetics and Political of Ethnography)

VII. Anthropological Research Methods

- Meaning, definition, types and aims of social research
- Qualitative and Quantitative research
- Purpose of research, Research Question, Variables, Hypothesis, Research Objective, Research design, Sampling, field Data Collection, Tools of Data Collection (Questionnaire, Interview, Participant Observation), Data Classification, Data Analysis, and Report Writing.

SUGGESTED READINGS

S.No.	Title	Author
1.	Anthropology	William A Haviland
2.	Cultural Anthropology	Onrad Philip Kottak
3.	Diffusion of Innovation	Evert M. Roger
4.	Socio Cultural Dynamics and impact of Technological Change	G. M. Foster
5.	Pakistani Society	Akber S. Ahmed
6.	Economic Anthropology	Sutti Ortiz
7.	Political Anthropology: An introduction	Ted. C. Lawellen
8.	Pukhtun economy and society	Akber S. Ahmed
9.	Principles of Anthropology	Eliot Dismore Chapple and
10.	Anthropology and Modern life	Franz Boas
11.	Anthropology and Contemporary Human	John H. Bodley
12.	Sindh and the Races that inhabit the Valley of	Richard Burton

S.No.	Title	Author
13.	The People of Pakistan	Yu. V. Gankorvsky
14.	Anthropology and Development	Jean-Pierre Olivier de
15.	An Introduction to Theory in Anthropology	Robert Layton
16.	Anthropological Theory	John R. McGee and Richa
17.	Anthropology in Pakistan	Stephen Pastner and Loui
18.	Anthropology (13th edition)	Carol R. Ember, Melvin R
19.	Other Cultures	John Beattie
20.	A Hand Book of Social Science Research	Bevelry R. Dixon, Gary D
21.	Frontier Perspectives: Essays in Comparative	Clarlies Lindholm
22.	Generosity and Jealousy: The Swat Pukhtun of	Clarlies Lindholm
23.	Friend by Day and Enemy by Night: Organized	Lincoin Keiser
24.	A Punjabi Village in Pakistan	Zekiye Eglar
25.	The social organization of the Marri Baluch	Robert Niel Pehrson
26.	Introducing Anthropology	Park, MA 2007
27.	Peoples and Cultures of Asia	Scupin, R 2005
28.	Outlines and Highlights for Anthropology	Scupin, R and Decorse, C
29.	Economic Anthropology	Stuart plattner
30.	Economies and Culture	Richard Wilk
31.	Introduction to Anthropology of Religion	Brian Moris

PAPER: Applied Mathematics (100 MARKS)

I. Vector Calculus (10%)

Vector algebra; scalar and vector products of vectors; gradient divergence and curl of a vector; line, surface and volume integrals; Green's, Stokes' and Gauss theorems.

II. Statics (10%)

Composition and resolution of forces; parallel forces and couples; equilibrium of a system of coplanar forces; centre of mass of a system of particles and rigid bodies; equilibrium of forces in three dimensions.

III. Dynamics (10%)

- Motion in a straight line with constant and variable acceleration; simple harmonic motion; conservative forces and principles of energy.
- Tangential, normal, radial and transverse components of velocity and acceleration; motion under central forces; planetary orbits; Kepler laws;

IV. Ordinary differential equations (20%)

- Equations of first order; separable equations, exact equations; first order linear equations; orthogonal trajectories; nonlinear equations reducible to linear equations, Bernoulli and Riccati equations.
- Equations with constant coefficients; homogeneous and inhomogeneous equations; Cauchy-Euler equations; variation of parameters.
- Ordinary and singular points of a differential equation; solution in series; Bessel and Legendre equations; properties of the Bessel functions and Legendre polynomials.

V. Fourier series and partial differential equations (20%)

- Trigonometric Fourier series; sine and cosine series; Bessel inequality; summation of infinite series; convergence of the Fourier series.
- Partial differential equations of first order; classification of partial differential equations of second order; boundary value problems; solution by the method of separation of variables; problems associated with Laplace equation, wave equation and the heat equation in Cartesian coordinates.

VI. Numerical Methods (30%)

- Solution of nonlinear equations by bisection, secant and Newton-Raphson methods; the fixed-point iterative method; order of convergence of a method.
- Solution of a system of linear equations; diagonally dominant systems; the Jacobi and Gauss-Seidel methods.
- Numerical differentiation and integration; trapezoidal rule, Simpson's rules, Gaussian integration formulas.
- Numerical solution of an ordinary differential equation; Euler and modified Euler methods; Runge-Kutta methods.

SUGGESTED READINGS

S.No.	Title	Author
1.	An Introduction to Vector Analysis	Khalid Latif,
2.	Introduction to Mechanics	Q.K. Ghori
3.	An Intermediate Course in Theoretical Mechanics	Khalid Latif,
4.	Differential Equations with Boundary Value Problems	D. G. Zill and M. R. Cullen
5.	Elementary Differential Equations	E.D. Rainville, P.E. Bedient and R.E. Bedient
6.	Introduction to Ordinary Differential Equations	A.L.Rabenstein
7.	Advanced Engineering Mathematics	E. Kreyszig
8.	An Introduction to Numerical Analysis	Mohammad Iqbal
9.	Numerical Analysis	R.L Burden and J.D Faires
10.	Elements of Numerical Analysis	F. Ahmad and M.A Rana
11.	Mathematical Methods	S. M. Yousaf, Abdul Majeed and Muhammad Amin

PAPER: BOTANY (100 MARKS)

I. Algae, Fungi and Bryophytes

- Phycology: Distribution, Classification, Structure, Life History and Economic importance of the main groups of Algae.
- Mycology and Plant Pathology: Structure, Reproduction, Classification and Economic importance of the main groups of Fungi. Diseases of economically important crops and general principles of their control
- Bryology: Structure and reproduction of bryophytes, Evolution of Gametophyte and Sporophyte.

II. Pteridophyta and Gymnosperms

- General account with special reference to structure, life history and affinities of both Pteridophytes and Gymnosperms. Ontogeny and structure of seed, classification and economic importance of Gymnosperms.

III. Anatomy and Embryology

- Primary and secondary tissues. Meristems. Secondary growth in dicot stem. Anatomy of leaf, stem and root.
- Micro and megasporogenesis, pollination mechanism, fertilization, development of Embryo and Endosperm, Seed dispersal.

IV. Taxonomy of Angiosperms

- Systems of classification. Rules of botanical nomenclature. Concepts of speciation. Introduction to modern trends in plant taxonomy: bio-systematic, chemotaxonomy and numerical taxonomy. General characters and economic importance of common angiosperm families.

V. Plant Physiology

- Plant water relations. Osmotic Quantities, component potentials of water and their role in transport, water absorption by roots, transpiration. Role of essential mineral elements and their uptake. Plant hormones. Photoperiodism, Vernalization. Dormancy and Seed germination. Enzymes.
- Photosynthesis: Plant pigments, Light reaction, CO₂ fixation, Mechanism of photophosphorylation.
- Respiration: Glycolysis, Krebs cycle, Mechanism of oxidative phosphorylation.

VI. Ecology

- Influence of climatic, edaphic and biotic factors on plant growth. Vegetation sampling techniques. Concepts of ecosystems and their productivity, ecological energetics, Pyramids (of numbers, biomass and energy), trophic levels, food chains and food webs. Biogeochemical cycles (Hydrological and Nitrogen). Succession.
- Causes and reclamation of soil salinity and water logging in Pakistan. Soil erosion, its control and soil conservation methods. Deforestation. Biodiversity conservation. Pollution.

VII. Cytology

- Cell cycle, cellular morphology, chemistry of cell wall and cell membrane, cell to cell communication, plant tissue and cell culture, cell senescence and cell death.

- Ultra-structure of various cell organelles: Mitochondria, Golgi bodies, Endoplasmic reticulum, Plastids, Ribosomes, Glyoxysomes, Vacuoles, Nucleus.

VIII. Genetics

- Mendelian Genetics, Multiple Alleles, Polygenic inheritance, Gene interaction, Epistasis and pleiotropy, Sex-linked inheritance, Chromosomal aberrations, Mutations, DNA repair.

IX. Evolution

- Introduction of Evolution, Evolutionary history, Evolution of life, Convergent Evolution, Divergent Evolution, Parallel Evolution and Natural selection

X. Molecular Biology

- Nucleic acids, DNA as hereditary material, DNA replication, Transcription, Genetic code, Protein synthesis, Genetic engineering and its application, Genetically Modified Organisms (GMO).

SUGGESTED READINGS

S. No.	Title	Author
1	Esau's Plant Anatomy: Meristems, Cells and Tissues of the Plant Body: Their Structure, Function and Development	Evert, F.F. and S. Hichhorn 2006
2	Cryptogamic Botany-Algae and Fungi	Smith, G. M. 2001
3	Cryptogamic Botany-Bryophyte and Pteridophyte	Smith, G. M. 2001
4	Comparative Morphology of the Vascular Plants	Foster, A.S. and E.H. Gifford. 1989
5	Plant and Environment	Daubermine, R, F, 1974
6	Plant Taxonomy and Biosystematics	Stac, C. A. 1980
7	Plant Physiology	Taiz, L.& E. Zeiger 2006
8	Genetics: A Conceptual Approach. 4 edition	Pierce, B. A. 2012
9	Molecular Cell Biology	Lodish, H., A. Berk, S.L. Zipursky, P. Matsudaira, D. Baltimore and J. Darnell 2000
10	Concepts of Genetics. 10 th edition	William S. Klug. 2012
11	Ilmi Biomolecules, Cell Biology and Genetics.	Cheema, T.A. and Cheema Z T. 2009

S. No.	Title	Author
12.	Carvan Textbook of Botany Paper "A" (Morphology of Plants)	Malik, T. A. 2006
13.	Ecology (Principles and applications). 1st ed. Cambridge University Press UK.	Chapman, J.L. and Reiss, M.J. 1992.
14.	Fundamentals of Ecology	Odum, E.P. and Barrett, G.W. 2004
15.	Advanced Plant Taxonomy	Mondal, A. K., 2009
16.	Growth and Differentiation in Plants	Phillips and Wareings

PAPER: BUSINESS ADMINISTRATION (100 MARKS)

I. Management

- Defining Organization, Management, and Management in Organizations
- Four Management Functions, Management Roles, Management Skills
- Organizational Internal-External Environment
- Management Planning, Goal Setting, and Decision Making
- Strategic Management Process: Strategy Formulation and Implementation
- Developing Organizational Structure and Design
- Designing Adaptive Organizations
- Managing Change and Innovation
- Leadership and Motivation

II. HR Management

- Role of Human Resource Management in Organizational Performance
- Functions of HRM
- Process and Methods of Job Analysis
- Planning and Forecasting Personnel Needs
- Recruitment and Selection
- Training and Development
- Performance Management and Appraisal: Methods and Processes
- Establishing Strategic Pay Plans
- Compensation and Benefits
- Ethics, Justice, and Fair Treatment in HR Management
- Labor Relations and Collective Bargaining

III. Financial Management

- **An overview of Financial Management**

Introduction and significance of financial markets, Differentiation between real assets and financial assets, Types of Financial Markets, Role of capital and money markets in economic development, Organizational goals and shareholder wealth maximization perspective

- **Time Value of Money**

Cost of money and the factors effecting the cost, Interest rate fundamentals and determinants of market interest rate, Role of Time value of money in finance, Concept of future value and present value, Making timelines, Annuities, Perpetuities and mixed stream of cash flows, with and without growth, Present value and future value of cash flow streams, Compounding Interest; discrete and continuous, Loan amortization

- **Analysis and Interpretation of Financial Statements**

Reading the financial statements, Horizontal and vertical analysis including common size, ratio, comparative and index number trend analysis, Forecasting financials for future decision making, Evaluating credit, management, profitability, risk etc using financial statements

- **Risk, Return and Introduction to Pricing**

Measures of Risks and return, Investment return and expected rate of return, Standalone risk: standard deviation and coefficient of variation, Risk aversion and required rate of return, Portfolio risk: Diversifiable vs. Market risk, Security Market Line and CAPM, Calculating WACC, Discounting process for price determination, Relevant risk and return for valuation

- **Cash flow and Budgeting**

Significance of budgeting, Making cash budgets, Making financial forecasts, Difference between profit and cash flow, Read and analyze Statement of Cash flow.

- **Capital Budgeting**

Significance of Capital budgeting, Cash flow calculations: incremental cash flows, Capital budgeting decision rules: NPV, IRR, MIRR, Return, Finding optimal capital structure, calculating appropriate discount rate, Capital Rationing

IV. Operations and Supply Chain Management

a. Operations Management

- **Operations & Productivity**

Operations Management (OM) as one of the Three Core Functions in an Organization. Significance and contributions of OM in the field of management. Future trends in OM and differences between goods and services.

- **Operations Strategy in Global Environment**

Developing mission & OM strategies, Critical Success Factors (CSF), Aligning Core Competencies with CSF

- **Process Strategy**

Four Process Strategies, Process Analysis and Design, Process Mapping, Flow Diagrams, Process Charts, Service process design, Process Re-engineering

- **Capacity Planning**

Design & Effective Capacity, Capacity Cushion, Capacity considerations, Managing demand, Capacity Planning, Leading vs Lagging Strategies, Single & Multiple Product Break Even Analysis for Capacity Planning

- **Location Strategies**

Factors Affecting Location Decisions, Methods for Evaluating Location Alternatives, Factor Rating Method, Load-Distance Methods, Center of Gravity Method, Service location Strategy

- **Layout Strategies**

Types of Layout, Layout Design, Fixed Position Layout, Process- Oriented Layouts, Office Layout, Retail Layout, Assembly Line Balancing

- **Inventory Management**

Role of Inventory in Operations, ABC analysis, Record accuracy, Cycle counting, Inventory Models, Fixed Period Systems, Continuous Review Systems, Basic EOQ Inventory Model, Safety Stock, Service Level

b. Supply Chain Management

- Introduction to supply chain management and logistics management

What is supply chain management and logistics management, Objectives, Importance, Examples of supply chain management and logistics management, Decision phases in supply chains

- Supply chain performance

Achieving strategic fit, Challenges in achieving strategic fit, Supply chain cost, Supply chain quality, Supply chain lead time

- Supply chain drivers

Facilities as a driver, Inventory as a driver, Information as a driver, Transportation as a driver, Sourcing as a driver, Pricing as a driver

- Balancing supply and demand

Bullwhip effect, Demand collaboration, Information sharing in supply chains, accurate response strategy

- Supply chain coordination

Obstacles in coordination, Vendor managed inventory, Collaborative planning forecasting and replenishment, Managerial levers to achieve coordination

- IT in supply chain management

Role of IT in supply chain management, Customer relationship management, Supplier relationship management, Risk management in IT, Supply chain IT in practice

V. Marketing

- Introduction to marketing
- Developing marketing strategies and plans
- Scanning the marketing environment
- Analyzing consumer markets
- Market segmentation
- Managing marketing information
- Branding
- Product life cycle
- Pricing
- Managing distribution channels
- Integrated marketing communications

SUGGESTED READINGS

S. No.	Title	Author
1.	Management	Richard L. Daft,
2.	Management	Stephen P. Robbins, Mary Coulter, and Neharika Vohara
3.	The Practice of Management	Peter F. Drucker
4.	Human Resource Management	Gary Dessler and Biju Varkkey
5.	Human Resource Management	Noe, Hollenbeck, Gerhart, Wright.
6.	Human Resource Management	David A. DeCenzo & Stephen P. Robbins
7.	Human Resource Management	Derek Torrington & Laura Hall
8.	Essentials of Corporate Finance	Ross, Westerfield and Jordan
9.	Principles of Finance	Besley and Brigham
10.	Financial statement Analysis	George Foster
11.	Principles of Managerial Finance	Gitman and Zitter
12.	Fundamentals of Corporate Finance	Brealey, Myers and Marcus
13.	Advanced Corporate Finance	Ogden, Jen and O' Conner
14.	Operations Management for Competitive Advantage, 2006	Chase, Richard B., Aquilano, Nicholas J., and Jacobs, F. Roberts
15.	Principles of Operations Management 2005	Raturi, Amitabh S., Evans, James R
16.	Operations Management 2008	Heizer, Jay and Render, Barry,
17.	Supply Chain Management: Strategy, Planning, and Operations	Sunil Chopra, Peter Meindl, and D.V. Kalra,
18.	Supply Chain Management: From Vision to Implementation	Stanley E. Fawcett, Lisa M. Ellram, and Jeffrey A. Ogden
19.	Business Logistics & Supply chain Management.	Ronald H. Ballou
20.	Principles of Marketing	Kotler, Armstrong, Agnihotri and Haque
21.	Basic Marketing	Perreault and McCarthy
22.	Marketing a Practical Approach	Peter Rix

PAPER: CHEMISTRY (100 MARKS)**I. Atomic Structure and Quantum Chemistry**

Electromagnetic spectrum, photoelectric effect, Bohr's atomic model, wave and particle nature of matter, de Broglie's equation, Heisenberg's uncertainty principle, wave functions and Born interpretation of wave functions, probability density, Eigen functions and Eigen values, Hamiltonian operator, Schrödinger wave equation and its solution for particle in one and three dimensional boxes.

II. Electrochemistry

Ions in solution, measurement of conductance and Kohlrausch's law, mobility of ions and transport number, conductometric titrations, Debye-Hückel theory and activity coefficient, determination of activities, Redox reactions, spontaneous reactions, electrochemical cells, standard electrode potentials, liquid junction potential, electrochemical series, Nernst's equation, measurement of pH, electrolytic cells, potentiometry, reference and indicator electrodes, fuel cells, corrosion and its prevention.

III. Thermodynamics

Equation of states, ideal and real gases, the van der Waals equation for real gases, critical phenomena and critical constants, four laws of thermodynamics and their applications, thermochemistry, calorimetry, heat capacities and their dependence on temperature, pressure and volume, reversible and non-reversible processes, spontaneous and non-spontaneous processes, Hess's law, The Born-Haber cycle, relations of entropy and Gibbs free energy with equilibrium constant, Gibbs Helmholtz equation, fugacity and activity.

IV. Chemical Kinetics

The rate and molecularity of reactions, Factors affecting rate of a chemical reaction, zero, first, second and third order reactions with same initial concentrations, half-lives of reactions, experimental techniques for rate determination and methods for determination of order of reaction (integration, half-life, initial rate and graphical methods), collision theory, transition state theory, Arrhenius equation and rate equations of complex reactions.

V. Surface Chemistry and Catalysis

Properties of liquids, physical and chemical properties of surface, determination of surface area. Adsorption and absorption; physical adsorption and chemisorption, adsorption isotherms, Langmuir adsorption isotherm and Freundlich isotherm. Colloids, properties, classification and preparation of colloidal systems. Surfactants, Phase rule, Gibbs equation of phase rule, one component systems, two component systems and their examples, Catalysis; homogeneous and heterogeneous catalysis, acid base and enzyme catalysis.

VI. Fundamentals of Chemometrics

Sampling, significant figures, stoichiometric calculations, measurement errors, analysis of variance (ANOVA), arithmetic mean, median, mode, standard deviation/relative standard deviation, confidence limits, Gaussian distribution, least square method, Statistical tests.

VII. Separation Methods

Solvent extraction; theory of solvent extraction; solvent extraction of metals, analytical separations, multiple batch extraction and counter current distribution.

Chromatography; theory of chromatography, classification and overview of chromatographic techniques (paper, thin layer, column and ion exchange chromatographies). Principle of electrophoresis and its application as separation and characterization of proteins.

VIII. Basic Inorganic Chemistry

Types of chemical bonding, ionic and covalent bonding, localized bond approach, theories of chemical bonding, valence bond theory (VBT), hybridization and resonance, prediction of molecular shapes using valence shell electron pair repulsion (VSEPR) model, Molecular orbital theory (MOT) applied to diatomic molecules, delocalized approach to bonding, bonding in electron deficient compounds, hydrogen bonding, Physical and chemical properties of p-block elements with emphasis on oxygen, carbon, chlorine, silicon, nitrogen, phosphorus and some of their representative compounds.

IX. Acids and Bases

Brief concepts of chemical equilibrium, acid-base theories including soft and hard acid and base (SHAB) concept, relative strength of acids and bases, significance of pH, pKa, pKb and buffer solutions. Theory of indicators, solubility, solubility product, common ion effect and their industrial applications.

X. Chemistry of d and f-block elements

General characteristics of d-block elements, historical back ground of coordination chemistry, nomenclature and structure of coordination complexes with coordination number 2-10, Chelates and chelate effect. Theories of coordination complexes; Werner's theory, Valence bond theory (VBT), Crystal field theory (CFT) and Molecular orbital theory (MOT). Jahn-Teller theorem, magnetic properties, spectral properties, isomerism, stereochemistry and stability constants of coordination complexes.

General characteristics of Lanthanides, occurrence, extraction and general principles of separation, electronic structure and position in the periodic table, lanthanide contraction, oxidation states, spectral and magnetic properties and uses. General characteristics of actinides, electronic structure, oxidation state and position in the periodic table, half-life and decay law.

XI. Basic Concepts of Organic Chemistry

Bonding and orbital hybridization, Localized and delocalized bonding, Inductive effect, Dipole moment, Resonance, Hyperconjugation.

XII. Saturated and Unsaturated Hydrocarbon

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

XIII. Chemistry of Aromatic Compounds

Benzene structure, Aromaticity, Mechanism of electrophilic substitution reaction, Activating and deactivating substituents, Effect of substituents on orientation and reactivity.

XIV. Chemistry of Functional Groups

Preparation and properties of alcohols, phenols, ethers, and amines with focus on reaction mechanism and applications. Preparation and reactions of alkyl halides. Synthetic applications of Grignard reagent. Carbonyl compounds, preparations and reaction mechanism of aldehydes and ketones and their applications. Carboxylic acids and their derivatives, acidity of carboxylic acids and effect of substituents on their acidity, preparation and reactions of carboxylic acids and their derivatives including acid halides, acid anhydrides, esters and amides.

XV. Aliphatic nucleophilic substitution and elimination reactions

Mechanism of nucleophilic substitution reactions. Elimination reactions, Zaitsev rule and Hofmann rule. Competition between Substitution and elimination reactions.

XVI. Stereochemistry

Molecular chirality. Types of stereoisomers. RS and EZ notation. Optical activity, Stereoselectivity and stereospecificity. Resolution of racemic mixtures.

XVII. Organic Spectroscopy

Theory, Principle, instrumentation and applications of UV/Visible, ^1H NMR, IR and Mass spectroscopic techniques.

XVIII. Biomolecules

Carbohydrates; Monosaccharides, oligosaccharides and polysaccharides, biological functions of starch, glycogen, cellulose, and cell wall polysaccharides.

Lipids; Classification and biological importance of lipids. Significance of lipids in biological membranes and transport mechanism.

Amino Acids; Chemistry and classification of amino acids. Physical and chemical properties. Biological significance.

Proteins; Classification. Properties and biological significance. Primary, secondary tertiary and quaternary structures.

Nucleic Acids; Chemical composition of nucleic acids. Structure and biological significance of nucleic acids.

Enzymes; Enzyme-substrate interactions and nature of active site, mechanism of enzyme action, kinetics of single substrate reactions, enzyme inhibition, regulatory enzymes and allosteric enzymes.

XIX. Metabolism

Digestion; absorption and transport of proteins, carbohydrates, lipids and nucleic acids. Glycolysis; citric acid cycle, gluconeogenesis, glycogenesis, glycogenolysis and photosynthesis.

Biosynthesis of triglycerides, phospholipids, steroids and bile acids and ketone bodies.

Biochemical reaction of amino acids: decarboxylation, deamination, transamination and transmethylation, etc., urea cycle, creatine and uric acid synthesis.

Catabolism of nucleosides, DNA polymerases and other enzymes involves in metabolism.

XX. Chemical Industries

Manufacturing and processing of sugar, cement, glass, paper, fertilizers, soap and

detergents.

SUGGESTED READINGS

S.No.	Title	Author
01	Physical Chemistry, 4 th ed., 2005.	Silbey, R. J., Alberty, R. A., and Bawendi, M. G.
02	Physical Chemistry – A Molecular Approach, 1 st ed. 1997.	McQuarrie, D. A. and Simon, J. D.
03	Atkin's Physical Chemistry, 9 th ed. 2010	Atkins, P. and Paula, J. D.
04	Physical Chemistry, 4 th ed. 1972.	Moore, W. J.
05	Modern Analytical Chemistry, 2000	Harvey, D.
06	Quantitative Chemical Analysis, 8 th ed. 2011.	Harris, D.C.,
07	Analytical Chemistry. 6 th ed., 2006.	Christian, G. D.
08.	CHEMOMETRICS-Statistics and Computed applications in Analytical Chemistry, 2 nd ed., 2007.	Matthios, O.
09.	Statistics and Chemometrics for Analytical Chemistry, 5 th ed. 2005.	Miller, J. and Miller, J
10.	Separation Chemistry 2004	Budhiraja, R.P
11	Advanced Inorganic Chemistry, 6 th ed. 2007.	Cotton, F.A. and Wilkinson, G.
12.	Inorganic Chemistry, 4 th ed. 2010.	Miessler, G. L. and Tarr, D.A.
13.	Inorganic Chemistry, 5 th ed. 2010.	Shriver, D. and Atkins, P.
14.	Textbook of Inorganic Chemistry 2013	Chaudhary, S. U.
15.	Organic Chemistry, 10 th ed. 2011.	Solomons, T. W. G., and Fryhle, C. B.
16.	Organic Chemistry, 6 th ed. 2012.	Brown, W. H., Fotte, C. S., Iverson, B.L. and Anslyn, E. V.
17.	Organic Chemistry, 8 th ed. 2012.	John, E. M.
18.	Introduction to Spectroscopy, 4 th ed., 2009.	Pavia, D. L., Lampman, G. M., Kriz, G.S. and Vyvyan, J. R.,
19.	Spectrometric Identification of Organic Compounds 2005	Silverstein, R. M. Webster, F. X. and Kiemle, D.
20.	Organic Spectroscopy 2006	Younas, M.
21.	Stereochemistry (Basic Concepts in Chemistry) 2002	Morris, D. G.
22.	Shreve's Chemical Process Industries, 5 th ed. 1984	Shreve, R. N. and Austin, G. T.
23.	Riegel's Handbook of Industrial Chemistry 2003.	Riegel, E. R., and Kent, J. A.

PAPER: COMPUTER SCIENCE (200 MARKS)

Paper-I (100 Marks)

Section-A (50 Marks)

I. Introduction to Computing

Introduction to Information Technology and Computers, History of Computing, Computer HW and SW Details, Computer System Components and Communication System, Input & Output devices and their types, Storage Media and their types, Types of Computer Hardware, Software, and Programming languages, Information Representation & Number Systems, User interfaces, Major Software Issues, Creation, formatting, and maintenance of Computer documents, Usage of Word processors, Spread sheets, Power-Point, Email, Search Engines, Browsers, Messengers, and Internet, Computers & Society, Information Security/Privacy, Computer Crimes and Ethical Challenges, Viruses, Plagiarism, Intellectual Property Rights, Difference between computer science, software engineering, information technology, information systems, computer engineering and bioinformatics; IEEE / ACM computing disciplines guidelines.

II. Programming Fundamentals

Basic programming elements and concepts, Problem Solving & Program Design, Components of a programming language, Program development and execution, Program structure, Data types and variable declarations, Standard I/O streams, and statements, Control structures, Standard library functions, User defined functions and parameter passing, Arrays, pointers, and strings, Structures, unions, and bit manipulation operators.

III. Object Oriented Paradigm

Object Oriented Programming Concepts (Object-oriented paradigm, data abstraction, encapsulation, inheritance, Polymorphism), Introduction to Classes and Objects (classes, objects, data members, member functions), Classes Advanced (friends, static, composition, this, const), Operator overloading (stream insertion, stream extraction, binary operator, unary operator), Inheritance (single inheritance, multiple inheritances, protected members, method over-riding), Polymorphism (virtual function, pure-virtual functions, abstract class, abstract super class), Standard Template Library (STL), Files & streams (sequential access files, random access files), File processing, Exception Handling

Section-B (50 Marks)

IV. Algorithms & Data Structures

Fundamental concepts, Properties of algorithms, Criteria for an Algorithm, Parameters for selecting an algorithm, Algorithm Representations, Pseudo Code and Flow Charts, Designing Algorithms, Algorithm Analysis and Asymptotic Notations, Classification of Lists, Abstract Data Types, Implementation of Stacks and Queues using ADTs, Searching and Sorting Algorithms (Linear Search, Binary Search, Bubble Sort, Merge Sort, Quick Sort, Heap Sort), Stacks and Queues, Hash Tables (Linear Probing, Bucketing, Chaining), Recursion, Trees (Binary Trees, Binary Search trees, AVL Trees, Two-Three Trees), Graphs, Heuristic (Guided) Search, Genetic Algorithms, Encryption Algorithms (DES, RSA)

V. Software Engineering

Software Processes, Software Process Models, Agile Software Development, Analysis Modeling, Requirements Engineering, Design Concepts, Architectural Design, Design & Implementation, Software Testing, System Delivery and Maintenance, Software Evolution Formal Specification, Software Quality Assurance, Introduction to Proofs of Correctness (LNO), Distributed Software Engineering, Aspect-Oriented Software Engineering, Project Management, Process Improvement

VI. Compiler Construction

Difference among various type of Translators, Phases of Compilers, Classification of Compilers, Lexical Analysis (Input buffering, Specification & Recognition of tokens, Regular expressions, Finite automata, Syntax Analysis (Context-free grammars and their classification, LL(k) vs. LR(k) grammars, Top-down vs. Bottom-Up parsers, Parsing Techniques, FIRST and FOLLOW sets, Predictive Parsing using LL(1) grammars, Syntax error handling and recovery strategies), Syntax Directed Translation (Synthesized attributes, Inherited attributes, Construction of syntax trees, Top-down translation), Semantic analysis (Symbol tables, Type Expressions, Type Checking of statements), Intermediate Code Generation, Code Generation (Issues in the design of code generation, The target machine, Run-time storage management, Register allocation), Code optimization (Elimination of Redundant code, Folding of Constant, Loop optimization, Peephole optimization, Problems of optimization).

Paper-II (100 Marks)

Section-A (50 Marks)

I. Computer Organization & Architecture

Fundamental concepts, Overview of a Computer System, Evolution & Performance Languages, Architectural levels, Virtual machines, Processor types, Metrics, Machine instructions, Instruction execution cycle, CISC vs. RISC, Parallelism, Internal/External data representation, Computer Function and Interconnections, Cache Memory, Internal Memory, External Memory, Input /Output System, Computer Arithmetic Microprocessor and its Bus Structure, I/O Types, Types of Buses, Memory Organization and Structure, information flow and execution in Machine, Instruction Representation, Machine Instruction Characteristics, Instruction Processing, Processor Structure & Function, Control Unit Operation, Micro-programmed Control, Instruction-Level Parallelism And Superscalar Processors, Parallel Processing, Multi-Processor and Multi-core Systems

II. Computer Communications & Networks

Basic Concepts and Classification of Networks, Circuit switching, Packet switching, Multiplexing (TDM, FDM), Layering: OSI and TCP/IP, Application Layer (Network application architectures, HTTP, FTP, Email, DNS, P2P applications), Transport Layer (Multiplexing in UDP and TCP, Connectionless Transport: UDP, Reliable data transfer and TCP, Congestion avoidance and control), Network Layer (The Internet Protocol, IPv4 Datagram, Internet Address Classes, Special IP Addresses ARP, IPv6, ICMP, Network Address Translation (NAT), Internet Routing Protocols and Algorithms, X.25, Frame relay and ATM, MPLS), Physical & Link Layer Functionalities (Error Detection & Control, ARQ, Link layer addressing, LAN Technologies, Bridges and Hubs, Multiple Access), Special

topics (Security, Overlay networks, naming, Content distribution networks, Peer to peer systems, DHTs, Network Attacks)

III. Operating Systems Concepts

Roles of an Operating System, Operating-System Evolution, Structures, and Operations, Classification of Operating Systems, Computing Environments, Design and Components of OS, Process Management, Process Synchronization, Deadlocks, Memory Management, Virtual Memory Management, File Systems (UNIX and Windows Systems), I/O Management

Section-B (50 Marks)

IV. Database Systems

Introduction to Database Systems, Relational Data Model & Relational Database Constraints, Relational Data Model, SQL, Relational Algebra & Calculus, ER Model, ER to Relational Mapping, PL/SQL Stored Procedures & Triggers, Functional Dependencies and Normalization, Storage & Indexing, Indexing Structure, XML documents & Web Services, Query Processing & Evaluation, Query Optimization, Transaction processing, Object-Oriented Databases, Distributed Databases, Database Security & Access Control

V. Digital Image Processing

The relation between Image Processing, Computer Graphics, Computer Vision and Artificial Intelligence; Image Sensing and Acquisition Techniques; Representing Digital Image; Image Sampling and Quantization; Image Storage and Operations; Image Transformations (Translation, Scaling, Rotation, Shear); Image Histogram; Image Enhancement (Contrast, Smoothing, Sharpening); Gray-scale and Color Images; Color Models (RGB, CMYK and HIS); Image Restoration; Noise Models; Morphological Operators (Erosion, Dilation, Opening, Closing, Skeletonization, Thinning); Image Segmentation; Point Detection, Line Detection, Edge Detection and Boundary Detection; Image Compression

VI. Web Engineering & Technologies

Modeling techniques for web applications, Introduction to web engineering, requirement engineering, requirement, types of requirements, functional requirements, non functional requirements, Requirement engineering process (Elicitation and negotiation, Documentation, Validation and verification, Management), HTML(hypertext markup language), Software Architecture, Styles, Patterns, and frameworks, Components of Web Architecture, Classifications of web architecture, Web Application layered architecture (client server, n- layered, JSP model, struts, OOHDM), Integration Architecture, Data Aspect architectures, Cascading Style Sheet(CSS), CSS properties, JavaScript (Functionalities, Events, Variables, Operators), DOM(Document Object Model), XML, RSS, API, Client-side programming using (HTML, XHTML, XML, JavaScript, and CSS), Server-side programming using PHP, Web development process, Web Application Development Methodologies, Web site promotion and deployment, Web applications Issues (Accessibility, testing, performance, operation, maintenance, security)

SUGGESTED READINGS

S. No.	Title	Author
1.	C++ How to Program	Harvey M. Deitel and Paul J. Deitel.
2.	Compilers: Principles, Techniques, and Tools	Alfred V. Aho, Ravi Sethi, and Jeffrey D. Ullman
3.	Operating System Concepts	Silberschatz, Galvin, and Gagne. John
4.	Operating Systems	William Stallings
5.	Computer Organization & Architecture	William Stallings
6.	Computer System Architecture	M. Morris Mano
7.	Computer Organization and Design: The Hardware/ Software Interface	David A. Patterson and John L. Hennessy
8.	Software Engineering	Ian Sommerville
9.	Software Engineering A Practitioner's Approach	Roger S. Pressman
10.	Data Structures and Algorithm Analysis in C++	Mark Allen Weiss
11.	Computer Networking: A Top Down approach featuring the Internet	James F. Kurose and Keith W. Ross
12.	Data and Computer Communications	William Stallings
13.	Computer Networks	Andrew Tanenbaum
14.	Fundamentals of Database Systems	Ramez Elmasri and S. B
15.	Database Systems Concepts	Silberchatz, Abraham & Korth, Sudarshan
16.	Web Services: Principles and Technology	Michael Papazoglu
17.	Electronic Commerce: The Second Wave, Ninth Edition	Gary P. Schneider
18.	Electronic-Commerce –A Managerial Perspective	Turban, Lee, King, Chung
19.	Web Engineering	Kappel, G., Proll, B. Reich, S. & Retschitzegger
20.	Styling Web Pages with CSS	Tom Negrino and Dori Smith
21.	PHP: The Good Parts	Peter B. MacIntyre
22.	Learn JavaScript	Chuck Easttom
23.	ADTs, Data Structures, and Problem Solving with C++	Larry R. Nayhoff
24.	Digital Image Processing	Gonzalez and Woods

PAPER: CONSTITUTIONAL LAW (100 MARKS)

- I. **Definition and Scope of constitutional Law, Basic Constitutional Concepts** (Constitutional Conventions, Rule of Law, Due Process), Constitutional Structures (Parliamentary, Presidential, Separation of Powers), Judiciary (Independence of Judicial Review, Theories of Constitutional Interpretation) Fundamental Human and Political Rights and Civil Liberties (freedom of speech, association, assembly, movement and Right to Counsel, life, property, religion, privacy, self incrimination, double jeopardy).
- II. **Principles of Constitutional Law with special reference to United Kingdom, United States of America, France, Russia, China, Pakistan, India and Turkey.**
- III. **Constitutional History of Pakistan: Principles of Constitutional Law of Pakistan, Salient feature of the Government of India Act, 1935, Indian Independence Act 1947, Objectives Resolution 1949, Constitutions of 1956, 1962 and 1973 Constitution, Abrogation of the Constitutions and the Martial Laws, Legal Framework Order, 1970, The PCO of 1981, The RCO of 1985, The LFO-2002, Amendments in the 1973 Constitution.**
- IV. **Legal Development:**
 - Maulvi Tamizuddin Khan v. Federation of Pakistan PLD 1955 Sindh 96.
 - Federation of Pakistan vs. Maulvi Tamizuddin Khan.
 - Reference by the Governor-General PLD 1955 FC 435
 - State v. Dosso PLD 1958 SC 533.
 - Usif Patel v. Crown PLD 1955 FC 387
 - Begum Nusrat Bhutto v. Chief of the Army Staff PLD 1977 SC 657
 - Hakim Khan v. Government of Pakistan PLD 1992 SC 585
 - Nawaz Sharif v. President of Pakistan PLD 1993 SC 473
 - Benazir Bhutto v. the President of Pakistan PLD 1992 SC 492
 - Khawaja Muhammad Sharif, PLD 1988 Lah. 725
 - Federation of Pakistan v. Haji Saifullah Khan PLD 1989 SC 166
 - Khawaja Ahmad Tariq Rahim PLD 1992 SC 646
 - Benazir Bhutto v. President of Pakistan, PLD 1998 SC 388
 - Asma Jilani v. Government of the Punjab PLD 1972 SC 139
 - State v. Zia ur Rehman PLD 1973 SC 49
 - Mahmood Khan Achakzai v. Fed. of Pakistan PLD 1997 SC
 - Zafar Ali Shah case, 2000

SUGGESTED READINGS

S.No.	Title	Author
1.	Comparative Constitutional Law	Hamid Khan & M.W. Rana
2.	Constitution of Pakistan 1973	Shabbar Raza Rizvi
3.	Introduction to the Study of the Law of the Constitution	Dicey
4.	Elgar Encyclopedia of Comparative Law	J.M. Smits
5.	Constitutional & Political History of Pakistan	Hamid Khan, Advocate
6.	Human Rights in Constitutional Law	SR. Bansali
7.	Constitutional Documents of Pakistan	Safdar Mahmood
8.	The Leading Cases in Constitutional Law	A.G.Chaudhry

PAPER: CRIMINOLOGY (100 MARKS)

Section-I (25 Marks)

I. Introduction

Basic concepts used in understanding crime, criminality and criminal.

II. Understanding Criminology

Definition, meaning and scope of criminology, Criminology and criminal law, Crime as social problem, Crime and social organization, related concepts: Deviance, Sin and Vice

III. Crime and Criminals

Occasional criminals, Habitual criminals, Professional criminals, White-collar crime, Organized crime, corporate crimes.

IV. Crime and Criminality: Theoretical Perspectives

Early explanation of criminal behavior

- Classical School
- Positivist School (Biological and Psychological Explanations)
- Positivist School (Sociological Explanation)
 - Social Disorganization theory
 - Strain theory
 - Social Control theory
 - Learning theory
 - Labeling Theory
- Islamic perspective

Section-II (25 Marks)

V. Juvenile Delinquency

Meaning, definitions (Behavioral Vs Legal), Juvenile delinquent Vs status offender, Official statistics of juvenile delinquency

VI. Juvenile Justice System

- Role of police
- Juvenile court process:
 - pretrial, trial and sentencing
 - Role of prosecutor, defense counsel, juvenile judge, juvenile probation officer
- Juvenile correctional institutions, probation and non-punitive alternatives

VII. The Criminal Justice System:

- Police and its role
- Trial and Conviction of Offenders
 - ∴ Agencies: formal and informal
 - ∴ Criminal courts: procedures and problems
 - ∴ Role of prosecutors
- Prisons, Probation and Parole

VIII. Punitive and Reformatory Treatment of Criminals

Corporal punishment, Imprisonment, Rehabilitation of criminals.

Section-III (25 Marks)

IX. Criminal Investigation

Principles of criminal investigation, Manual of preliminary investigation, Intelligence operations, Data base investigation, Electronic investigation, Forensic Investigation

X. Techniques of Investigations

Gathering information from persons, Interviewing and interrogation techniques, Criminal investigation analysis,

XI. Legal and Ethical Guidelines for Investigators

Stop and frisk operations, Arrest procedures, Search and seizure.

XII. International Policing Criminal Justice Monitoring Organizations

UNAFEI, INTERPOL, EUROPOL, UNODC, UNICEF, IPA, etc.

Section-IV (25 Marks)

XIII. Modern Concepts in Contemporary Criminology

- Terrorism, Radicalism and War on Terror
- Media's representation of Crime and the Criminal Justice System
- Modern Law Enforcement and Crime Prevention
 - ∴ Intelligence-led Policing
 - ∴ Community Policing
 - ∴ Private Public Partnership
- Gender and Crime in Urban and Rural Pakistan
- Crime and Urbanization, Organized Crime and White-Collar Crime
- Human Rights Abuses and Protection, especially Children, Women and Minorities and the role of civil society and NGOs
- Money-laundering
- Cyber Crime
- Role of NAB, FIA, ANF

SUGGESTED READINGS

S.No.	Title	Author
1.	New Perspectives in Criminology	Conklin, J.E
2.	Criminal Interrogation and Confessions.	Fred, E.I., John, E.R., Joseph, P.B. and Brian, C.J.
3.	Theoretical Criminology	George B. Vold, Thomas J. Bernard, Jeffrey B. Snipes
4.	Modern Criminology: Crime, Criminal Behavior and its Control.	Hagan, J.
5.	Juvenile Delinquency: An Integrated Approach	James, B.
6.	Security Studies: An Introduction	Paul, D.W.
7.	Crime, Justice and Society: An Introduction to Criminology	Ronald, J.B., Marvin, D.F. and Patricia, S.
8.	Juvenile Delinquency: Theory, Practice, and Law	Seigel, L.J.
9.	Crime Prevention: Theory and Practice	Stephen, S.

Sr. No.	<u>Suggested Websites</u>
10.	International Society of Criminology (ICS): http://www.isc-sic.org
11.	American Society of Criminology (ASC): http://www.asc41.com/
12.	British Society of Criminology (BSC): http://www.britsocrim.org/
13.	European Society of Criminology (ESC): http://www.esc-eurocrim.org/
14.	International Police Executive Symposium (IPES): http://www.ipes.info/
15.	Asian Criminological Society (ACS): http://www.ntpu.edu.tw/college/e4/acs/home.php
16.	Asian Association of Police Studies (AAPS): http://www.aaps.or.kr/
17.	Campbell Library: http://www.campbellcollaboration.org/library.php
18.	UNAFEI (Japan): http://www.unafei.or.jp/english/
19.	Pakistan Society of Criminology (PSC): www.pakistansocietyofcriminology.org/
20.	South Asian Society of Criminology and Victimology (SASCV): http://www.sascv.org/

PAPER: ECONOMICS (200 MARKS)

Paper-I (100 Marks)

I. Micro Economics

Consumer behaviour, Determination of market demand and supply i.e. concept of elasticity of Demand & Supply, Static, Comparative Static Analysis, Distinction between partial and general equilibrium analysis (basic level) theory of the Firm, Producer's equilibrium, Pricing of the factors of production

II. Macro Economics

Basic Economic Concepts, National Income Accounting, Consumption Function, Multiplier, Accelerator, Component of Aggregate Demand, Labour Demand and Supply, Un-Employment, Determination of equilibrium level of income and output (at least with reference to two or three school of thought), Inflation.

III. 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, Distinction between Goals, Operational & Intermediate Target of Central Banks Policy, Concept of Reserves, Liquidity Premium, Term Structure of Interest Rate, Fisher Equation etc; Transmission Mechanisms of Monetary Policy, Theory of Liquidity Preference. TVM, Capital Structure, Capital Restructuring, IS-LM Analysis and The role of Central Bank, Money Demand and Supply.

IV. Public Financing

Government expenditure, Sources of Government Revenue, Privatization, Taxes and non-taxes, Incidence of different taxes, Public Debt, Objectives, methods of repayment, Deficit financing, General Equilibrium Analysis, Welfare Economics, Fiscal Policy.

V. International Trade

Theories of comparative advantage and Factor Endowments, Trade & Growth, Colonialism, Imperialism and International Trade, Trade Restrictions, Economic Integration, Trade Policy, Balance of Payments, Foreign Exchange, International Monetary system, Custom Unions.

VI. Economic Development

Concepts of development, Human development, Historical growth process and Development, Theories of development, structural issues of development, Income distribution and poverty, sectoral (agricultural, Industry, trade and fiancé) issues and development, environment and development.

Paper-II (100 Marks) (Economics of Pakistan)

- I. **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, Sustainable Development, Environmental Degradation & other Issues.
- II. **Planning Experience of Pakistan:** A critical evaluation of the strategy of economic planning, governance & Institutions.
- III. **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, Rural Development.
- IV. **Industrial Development in Pakistan:** Early industrialization 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 Nationalization Policy, Concentration of industrial income and wealth, Evaluation of Import Substitution Policy and Export led Growth Strategy in Pakistan.
- V. **Role of Foreign Trade and Aid in Economic Development :** Trends in Pakistan's Balance of Payments, Terms of Trade, 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, Role of Foreign Investment.
- VI. **Privatization, Denationalization, Deregulation:** conceptual and operational aspects. International comparisons. Pakistan Experience of Privatization.
- VII. **Interest Free Banking in Pakistan**

VIII. Energy Policy of Pakistan

IX. Social Sector Development in Pakistan

X. Major Issues in Pakistan Economy: Energy crisis, Corruption, Bad governance, External debt accumulation and dependency, Unemployment, Income inequality, Inflation, Fiscal and trade deficits, Balance of payment issues, Shortage of irrigation water.

SUGGESTED READINGS

S.No	Title	Author
1.	A Text-book of Economics Theory	Stonier & Hague
2.	Economic Development	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, Paul Krugman, Donimich Salvatore
10.	Microeconomic	Ferguson, C.E. & Gould, J.P., Nicholson, Mankiw
11.	Macroeconomics	Rudigar Dorubush and Stanley Fisher Blanchard
12.	Population Problems	Theompson & Lewis
13.	Studies in Economic Development with Special Reference to Pakistan	Ghouse, A.
14.	History of International Trade	Findlay, R and O' Rourke, K
15.	Colonialism and Modernization	Karl Marx Anchor books
16.	On Colonialism	Karl Marx and Frederick Engels,
17.	Economic Survey of Pakistan	Government Publication

18. Economy of Modern Sindh (Opportunities Lost and Lessons for the future)

Ishrat Hussain, Aijaz A. Qureshi
Nadeem Hussain

PAPER: ENGLISH LITERATURE (100 MARKS)

The paper is divided into six components along with the marks allocation for each component.

I. Essays: (10 Marks)

- Bertrand Russell (The Conquest of Happiness)
- George Orwell (Politics and the English Language; The Prevention of Literature)
- Ralph Waldo Emerson (The Transcendentalist; Self-reliance)

II. Short Stories: (10 Marks)

- Somerset Maugham (The Lotus-eater)
- G.K.Chesterton (A Somewhat Improbable Story)
- O'Henry (The Gift of the Magi)

III. Poetry: (20 marks)

- William Wordsworth (Resolution Independence; Tintern Abbey)
- John Keats (Ode to a Nightingale; Ode to Autumn)
- Lord Alfred Tennyson (Ulysses; The Lady of Shalott)
- Yeats (A Dialogue of Self and Soul; The Second Coming)
- Eliot (The Wasteland; Love Song of J. Alfred Prufrock)
- Philip Larkin (Maturity; Continuing to Live; The Trees)
- Wallace Stevens (A postcard from the volcano; Continual conversation with a silent man; Dry loaf) OR Walt Whitman (As I ponder'd in silence; Are you the new person drawn toward me?; This moment yearning and thoughtful)

IV. Drama: (20 marks)

- Shakespeare (*Hamlet; King Lear, As you like it and Twelfth Night*)
- William Congreve (*The Way of the World*)
- Shaw (*Pygmalion; Heartbreak House*)
- Harold Pinter (*The Caretaker*)
- Samuel Beckett (*Waiting for Godot*)
- Eugene O'Neill (*Long Day's Journey into Night*)

V. Novels: (20 marks)

- Thomas Hardy (*Far from the Madding Crowd*)
- D.H. Lawrence (*Sons and Lovers*)
- George Orwell (*Nineteen Eighty-four*)
- James Joyce (*A Portrait of the Artist as a Young Man*)
- Iris Murdoch (*Under the Net*)
- Nathaniel Hawthorne (*The Scarlet Letter*) or William Faulkner (*The Sound and the Fury*)

VI. Literacy Theory & Criticism (20 Marks)

- Structuralism
- Marxism
- Deconstructionism
- Psychoanalytic criticism
- Feminist criticism
- Postcolonial Criticism

Note: The texts are mentioned in brackets in front of each author's name. However, for the component on "Literary Theory and Criticism" and for understanding poetry and drama, particularly 20th century poetry and Drama, following readings are suggested:

SUGGESTED READINGS

S.No.	Title	Author
1.	The basics Literary Theory. (Second edition). Routledge.	Bertens, H. (2008).
2.	Literary Theory: An Introduction. (Anniversary Edition).	Eagleton, E. (2008).
3.	A New Handbook of Literary Terms.	Mikics, W. (2007).
4.	A Companion to Twentieth Century Poetry.	Roberts, N. (2003).
5.	A Reader's Guide to Contemporary Literary Theory. (Fifth edition).	Selden, R., Widdowson, P., & Brooker, P. (2005)
6.	Twentieth Century British Drama.	Smart, J. (2001).
7.	Modern Critical Views & Interpretations, ed: 80's and 90's editions.	Harold Bloom (these include all range of authors and their works given above)
8.	A Companion to 20 TH Century Drama Oxford: Blackwell.	Krasner David. 2005.

PAPER: ENVIRONMENTAL SCIENCE (100 MARKS)

I. History of Environmental Thought

Environment and Sustainable Development, History of Environmental Movements, Industrial and Agriculture Revolution, United Nations Conference on Human Environment 1972, Our Common Future 1987, Rio Summit 1992, Agenda 21, World Summit on Sustainable Development 2002, Millennium Development Goals.

II. Sustainable Development Issues

Population growth, Poverty, Biodiversity loss and its Conservation, Energy security (energy conservation and alternative energy resources), Urbanization and sustainable cities, Carrying capacity and ecological footprint. Food security and sustainable agriculture. Ecological restoration.

III. Interdisciplinary nature of Environmental Science

Orientation on convergence of various social and natural sciences to evolve a new discipline of environmental science: Environmental Biology, Environmental Chemistry, Environmental Physics, Environmental Microbiology, Environmental Toxicology, Environmental Economics, Environmental Geology, Environmental Geography, Environmental Biotechnology, Environmental Sociology.

IV. Environmental Pollution

Air Pollution, Water Pollution, Soil Pollution, Noise Pollution, Solid Waste, Water Logging & Salinity, Deforestation, Desertification, Eutrophication, Global and regional air pollution problems (Greenhouse effect, Global Warming/Climate Change, Ozone Depletion, Acid Rain).

V. Climate Change

Climate Pattern at local, regional and global scale. Different types of climate including tropical and mid latitude climate, polar climates. Climate change processes, Drivers and Indicators of Climate Change, Effects of Climate Change on natural and societal systems. Carbon foot print. Climate change adaptation and mitigation, Clean Development Mechanism (CDM), REDD+. Global environmental politics on climate change: role of India, China and USA (Copenhagen Accord 2009).

VI. Environmental Governance

Policy, legal and institutional frameworks for governance of environment in Pakistan: National Conservation Strategy of 1992, National Environmental Policy Act of Pakistan

2005, Environmental Protection Act of 1997, Pak-EPA (Review of IEE/EIA) Regulations
 2000, Hospital Waste Management Rules 2005, Pollution Charge Rules, Sample Rules,
 Solid Waste Management Plan 2005, Hazardous Substances Rules 2005, National
 Drinking Water Policy 2009, Sanitation Policy, National Climate Change Policy 2012.

VII. Global initiatives

Brief on some of the Multilateral Environmental Agreements ratified by Pakistan,
 Convention on Biological Diversity (CBD), Cartagena Protocol on Bio-safety, Convention on
 International Trade in Endangered Species of Wild Fauna and Flora (CITES), Convention
 on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar
 Convention), Convention on the Conservation of Migratory Species (CMS), United Nations
 Framework Convention on Climate Change (UNFCCC), Kyoto Protocol to UNFCCC,
 Montreal Protocol on Substances that deplete the Ozone Layer, United Nations Convention
 to Combat Desertification (UNCCD).

VIII. Environmental Assessment and Management

Environmental Impact Assessment, Strategic Environmental Assessment, Environmental
 Management Systems (ISO 14000), Occupational Health & Safety management systems
 (OHSAS 18000), Participatory Approaches to Environmental Management, Technological
 Approaches to Environmental Management, Approaches to Solid Waste Management,
 Disaster Risk Management, Pollution Control Technologies, Geographic Information
 System & Remote Sensing, Natural Resources Management.

SUGGESTED READINGS

S.No.	Title	Author
1.	Environmental Economics in Theory and Practice.	Hanley, N. Shorgen, J, White, B
2.	Industrial Safety Health and Environmental Management	Jain R.K. Rao S.S
3.	Environmental Science: Earth as a living Planet, 9 th ed.	Botkin, D. Keller, E. 2014
4.	Environmental Geology Facing the Challenges of Our Changing Earth	Erickson, J
5.	Environmental Geology.	Keller A. Edward
6.	Earth Science.	Tarback. J. Edward Lutgens K. Friederick
7.	Environmental Science: A Study of Interrelationship	Enger ED, Smith, B.F

S.No.	Title	Author
8.	Basics of Forestry and Applied Sciences, Concepts and Theory	Masood A.A Qureshi
9.	Environmental Science: Working with Earth	Miller. T.G
10	Disaster Management: A Disaster Manager's Handbook	Carter N.W
11	Disasters and Development	Cuny, F.C.
12	Disaster Management: Warning Response and Community Relocation	Perry R.W. Mushkatel, A.H.
13	Energy: Crisis or Opportunity, An Introduction to Energy Studies	Diana Schumacher
14	Environmental Geology	Carla W. Montgomery
15	Environmental Health; Ecological Perspective	Kathryn Hilgenkamp
16	Official Website of Govt. of Pakistan	www.environment.gov.pk
17	Official Website of UN Environment Programme.	www.unep.org

PAPER: EUROPEAN HISTORY (100 MARKS)

Part –I (Marks 50)

I. The French Revolution and Napoleonic Era (1789-1815)

- The causes of French Revolution
- The consequences of Revolution
- Napoleon rise to power
- Creation of Empire
- The Continental system
- The fall of Napoleon

II. The Concert of Europe (1815-1830)

- The Congress of Vienna
- Metternich's Era
- The Concert of Europe and Congress System
- Balance of Power

III. Forces of Continuity and Change in Europe (1815-1848)

- Nationalism
- Liberalism
- Romanticism
- Socialism
- Industrial Revolution
- Colonialism
- Consequences

IV. The Eastern Question (1804-1856)

- The nature of the Eastern question
- The Crimean War
- Russo Turkish War 1877
- Consequences

V. Unification of Italy

- The effects of the revolution of 1848
- The obstacles to unification
- Cavour and the unification of Italy
- The Process of Italian unification (1859-1871)

VI. Unification of Germany

- The rise of Bismarck
- Diplomatic events
- The Austro-Prussian War (1866)
- The Franco- Prussian War (1870-1871)
- The triumph of Bismarck and process of unification

VII. The Origins of First World War (1890-1914)

- Formation of Alliances and Counter Alliances
- The Balkans War (1912-1913)
- The outbreak of the World War 1

Part –II (Marks 50)**VIII. The First World War and its aftermath**

- The War (1914-1918) and peace treaties
- The League of Nations

IX. Dictatorships in Europe

- Fascism in Italy under Mussolini
- Hitler, Nazism and Germany
- Russia , Marxism Revolution and its working under Stalin
- Great Depression and its effects on Europe
- Appeasement
- The Arm race
- The Sudetenland Crisis (1938)
- The distraction of Czechoslovakia (1939)

X. The World War 11and its effects on Europe**XI. Post- War Europe**

- The post war settlements
- The United Nations
- Economic Recovery of Europe, Marshal Plan
- German Question
- NATO
- Decolonization

XII. Cold War Europe (1955-1991)

- Effects of cold war
- Warsaw Pact (1955)
- The European Economic Community (EEC)
- Nuclear Non-Proliferation Agreement
- Charles De Gaulle and France
- Spread of communist regimes in Europe

XIII. Europe (1991-2012)

- The Gorbachev and Disintegration of USSR
- The reunification of Germany
- The Balkan crisis of 1990s
- The European Union
- Role of Europe in War against terrorism
- Global Economic Crisis and Europe

SUGGESTED READINGS

S. No.	Title	Author
1.	A History of Modern Europe (1789-1991)	H.L. Peacock,
2.	The Struggle for Mastery in Europe: 1848-1918	A.J.P Taylor,
3.	The Cold War: Ideological Conflict or Power Struggle	Normali A. Grabener
4.	The USSR: A Share History	Vladimir Poltayan,
5.	Development in Russian Politics	Stephen White,
6.	Mastering Modern European History	Stuart Miller,
7.	A Text Book of European History	by Southgate, G.W.
8.	Aspects of European History 1789-1980.	Stephen J. Lee
9.	Europe Since Napoleon	Thompson, D.
10.	European Union: European politics.	Tim Bale.
11.	Modern Europe in the Making from the French Revolution to the Common Market	Fasal, G.
12.	The Norton History of Modern Europe	Gilbert, F.
13.	The Origins of the Second World War	Taylor, A.J.P.
14.	The Rise and Fall of Great Powers.	Paul Kennedy.

PAPER: GENDER STUDIES (100 MARKS)

- I. **Introduction to Gender Studies**
 - Introduction to Gender Studies
 - Difference between Gender and Women Studies
 - Multi-disciplinary nature of Gender Studies
 - Autonomy vs. Integration Debate in Gender Studies
 - Status of Gender Studies in Pakistan
- II. **Social Construction of Gender**
 - Historicizing Constructionism
 - Problematizing the category of "Sex": Queer Theory
 - Is "Sex" socially determined, too?
 - Masculinities and Feminism
 - Nature versus Culture: A Debate in Gender Development
- III. **Feminist Theories and Practice**
 - What is Feminism
 - Liberal Feminism
 - Radical Feminism
 - Marxist/Socialist Feminism
 - Psychoanalytical Feminism
 - Men's Feminism
 - Postmodern Feminism
- IV. **Feminist Movements**
 - Feminist Movements in the West, First Wave, Second Wave and Third Wave Feminism, United Nation Conferences on Women, Feminist Movements in Pakistan.
- V. **Gender and Development**
 - Colonial and Capitalistic Perspectives of Gender
 - Gender Analysis of Development Theories; Modernization Theory, World System Theory, Dependency Theory, Structural Functionalism.
 - Gender Approaches to Development: Women in Development (WID), Women and Development (WAD), Gender and Development (GAD); Gender Critique of Structural Adjustment Policies (SAPs).
 - Globalization and Gender
- VI. **Status of Women in Pakistan**
 - Status of Women's health in Pakistan
 - Status of Women in Education
 - Women and Employment
 - Women and Law

- VII. **Gender and Governance**
- Defining Governance
 - Suffragist Movement
 - Gender Issues in Women as Voters
 - Gender Issues in Women as Candidates
 - Gender Issues in Women as Representatives
 - Impact of Political Quota in Pakistan
- VIII. **Gender Based Violence**
- Defining Gender Based Violence
 - Theories of Violence against Women
 - Structural and Direct Forms of Violence
 - Strategies to Eliminate Violence against Women
- IX. **Case Studies of:**
- Mukhtaran Mai
 - Mallala Yousaf Zai
 - Shermin Ubaid Chinoy

SUGGESTED READINGS

S.No.	Title	Author
1.	Theories of Women Studies	Eds., Bowles. Gloria and Renate D. Klein
2.	Introduction: Theories of Women Studies and the Autonomy/ Integration Debate in Theories of Women Studies.	Bowles G and Renate, K.
3.	The State of the Discipline of Women Studies in Pakistan in Social Sciences in Pakistan	Saigol, Rubina
4.	The State of Women Studies in Pakistan in Journal of Asian Women Studies	Bari, Farzana
5.	Women's Law in Legal Education and Practice in Pakistan.	Shaheed, F. and Mehdi, R. (ed.) (1997)
6.	Locating the self: Perspectives on Women and Multiple Identities.	Khan, N.S. et al.(ed.) (1998)
7.	The Social Construction of Gender	Lorber, Judith
8.	Queer Theory	Lorber, Judith
9.	Gender,USA,	Harriet Bradley(2013)
10.	Women of Pakistan: Two Steps Forward, One Step Back.	Mumtaz,Khawar& Shaheed, Farida(1987)
11.	Feminism and its Relevance in South Asia	Saeed K, Nighat & Bahsin, Kamla

S.No.	Title	Author
12.	Feminist Thoughts	Tong, Rosemarie
13.	Reversed Realities	Kabeer, Naila
14.	Gender Planning and Development	Moser, Caroline
15.	Electoral Politics: Making Quotas Work For Women.	Hoodfar,Homa&Tajali, Mona (2011)
16.	The Gender face of Asian Politics	Ayaz, Aazar & Fleschenberg, Andrea(2009)
17.	Performance Assessment of Women Parliamentarians in Pakistan	Bari, Farzan (2002)
18.	Base line Report: Women's Participation in Political and Public Life	Zia, Shahla & Bari, Farzana. (1999)
19.	Freedom from Violence	Schuler, Margarte (1992)
20.	Human Rights Commission of Pakistan Report	

PAPER: GEOGRAPHY (100 MARKS)

Part -I (Marks 50)
Physical Geography

- I. Factors controlling landform development; endogenetic and exogenetic forces; origin and evolution of the earth's crust; physical conditions of the earth's interior; geosynclines; continental drift; isostasy; sea-floor spreading; plate tectonics; mountain building; volcanicity; earthquakes; concepts of geomorphic cycles; landforms associated with fluvial, arid, glacial, coastal and Karst cycle; groundwater.
- II. Elements and Factors of climate, structure and composition of atmosphere, insulation, temperature, Pressure belts of the world; Heat budget of the earth; Atmospheric circulation; planetary, monsoon and local winds; Air masses and Fronts; Hydrological cycle; Types of condensation and precipitation; Factors of global distribution of precipitation.
- III. Origin of oceans and seas, Characteristic features of the ocean basins, temperature, salinity distribution cause and effects, Ocean floor deposits, their characteristics and classification, Ocean circulation, Waves, currents and tides, their nature, causes and effects.
- IV. Factors of climate and Environmental change. Transformation of nature by man; environmental degradation and conservation; Nature and Types of pollution, Problems caused by pollution, Global Warming, Global Environment Patterns, Environmental Hazards and Risk Management.

Part -II (Marks 50)
Human Geography

- V. Origin and Diffusion of Culture, Geographic patterns of culture, Classification of Languages, World Distribution of Languages, Indo-European Languages, Origins of Religions, Diffusion of Religions, Global Distribution, Regional conflicts, Ethnicities and Nationalities, Ethnic Conflicts, Ethnic Diversity in the World, Factors of Ethnic Cleansing, Ethnic Cleansing in the World, Development Indicators, Economic Indicators, Social Indicators, Health Indicators, Development through Trade, Impacts of development Indicators.
- VI. Factors effecting Agriculture, Subsistence Agriculture and population growth, Commercial Agriculture and Market Forces, Sustainable Agriculture, Types and Distribution of Agriculture, Factors of Industrial locations, The Industrial Revolution, Industrial Theories, Distribution of Industries and Industrial Estates, Renewable Resources, Recycling Resources, Sustainable resources.
- VII. Factors of Population Growth, Components of Change, Population Structure, The Demographic Transition, World distribution of Population, Over and under Population threats and their consequences, Models of Internal Structure of Cities, World Urban Patterns, Settlement Theories, Patterns and Problems within urban areas.
- VIII. Politics, Geography and Political Geography, State as a Politico-Territorial Phenomenon, State, Nation and the Nation-State, World Politics and International

Relations, Geopolitics of uneven Development and Globalization of Capital, Geography of Tourism and Recreation, The demand for tourism and recreation, The supply for tourism and recreation, The impact of tourism and recreation: (Socio-economic impacts, Physical-environmental impacts), Global patterns in health and diseases, Models in medical geography, Recent issues and developments.

SUGGESTED READINGS

S.No.	Title	Author
1.	Discovering Physical Geography 2nd ed. Hoboken:John Wiley & Sons, Inc.	Alan F. Arbogast (2011).
2.	Introducing Physical Geography. Hobken: John Wiley & Sons	Alan Strahler, (2011).
3.	Atmosphere, Weather and Climate (7th ed.). London: Clays St. Davis.	Barry, R. (1998).
4.	Meknight's Physical Geography A Landscape application	Darrel Hess (2012).
5.	Text Book of Population Geography, Randam Publications, New Delhi.	Dr. Martin Ardagh (2013).
6.	Atmosphere, Climate and Change. New York: Scientific American Library	Graedel, T. (1995).
7.	An Introduction to Oceanography.	Johnson H. (1996).
8.	Economic Geography. Randam Publications, New Delhi.	Philip Emeral (2013).
9.	Essentials of Physical Geography 8 th ed Australia.	Robert E. Gabler & James F. Petersen (2007)
10.	Geosystems: An Introduction to Physical Geography 7 th ed. New Jersey: Pearson Prentice Hall	Robert W. Christopherson (2009).
11.	Tourism Geography: Randam Publications, New Delhi.	Shweta Singh (2013).
12.	Elements of physical geography. New York. John Wiley.	Strahler, A. N. (1998).
13.	Natural Disaster Management: New technologies and opportunities, The Icfai Uni. Press, Agartala.	Subir Ghosh (2012).
14.	Economic Geography 3 rd ed. PHI Learning, New	Truman A. Hartshorn (2010).
15.	Environmental Geography: Science Landuse and Earth System 3rd ed. Hobken: John Wiley & Sons.	William M. Marsh (2005).
16.	Geography, Regions and Concepts. U.S.A: John Wiley and Sons, Inc.	Blif, H. J. (1971).
17.	Human Geography. Canada: John Wiley & Sons, Inc.	Blij, H. J. (2000).
18.	Population Geography Oxford: Pergamon Press.	Clarke, J. I. (1965).

S.No.	Title	Author
19.	Human Geography Cultural Society and Space. (5 th ed.). New York: John Wiley & Sons.	De Blij, H. J. (2003).
20.	Political Geography: The Spatiality of Politics. (3rd ed.). New Delhi: Tata McGraw-Hill Publishing Company Limited.	Dikshit, R. D. (2001).
21.	Agricultural Geography: Issues and Applications. New Delhi: Gian Publishing House.	Dube, R. S. (1987).
22.	Human Geography Landscape of Human Activities. (8 th ed.). New York: Mc.Graw Hill Higher Education.	Getis, Fellman. (2005).
23.	An Introduction to Agricultural Geography. London: Hutchinson.	Grigg, D. (1984).
24.	The Geography of Tourism and Recreation (1 st ed.). London: Routledge.	Hall, C. M; & Page, S. J. (1999).
25.	Economic Geography. New York: Prentice Hall, Inc. Englewood Cliffs.	Hartshorne, T. A. & Alexander, J. W. (1988).
26.	Geography & Health: A study in medical Geography. New Delhi: A.P.H. Publishing corporation.	Izhar, F. (2004).
27.	Geographies of Global Change. Blackwell Publishers Inc.	Johnston, R. J. (1996).
28.	Urban Geography, New York: McGraw Hill.	Kaplan, Wheeler (2009).
29.	Human Geography Place and Region in Global context. (2 nd ed.) .New Jersey: Prentice Hall.	Knox Paul L. (2001).
30.	Agricultural Geography. London: Longman.	Newbury, P. A. R. (1999).
31.	Contemporary Human Geography. New Delhi: PHI Learning Private Limited.	Rubenstein James M. (2010).
32.	Tourism Geography (1 st ed) London: Routledge.	Williams, S. (1998).

PAPER:

GEOLOGY

(100 MARKS)

Part-I (50-marks)

I. Introduction to Physical Geology

Introduction and scope of geology, its importance and relationship with other sciences, Earth as a member of the solar system; its origin, age, composition and internal structure, Introduction to rocks and mineral, Weathering and erosion, Isostasy, Geological Time Scale.

II. Stratigraphy and Paleontology

Principles of stratigraphy; laws of superposition and faunal succession. Geological time scale with divisions. Classification and nomenclature of stratigraphic units: lithostratigraphic units, biostratigraphic units and chronostratigraphic units.

Introduction to fossils and their significance; modes of fossilization, Study of morphology, range and broad classification of major invertebrate phyla; Introduction to micro fossils; Introduction to Paleobotany; Introduction and classification of major vertebrates; Introduction to micropaleontology

III. Mineralogy

Classification of minerals; Study of internal structure; polymorphism and isomorphism; paragenesis; Physical and optical properties of the common silicate and non-silicate mineral groups; Introduction to crystallography; elements of symmetry, study; normal classes of crystallographic systems.

IV. Structural Geology and Tectonics

Stress-strain concepts; factors which control the mechanical behavior of materials; Folds, Faults, Joints, Foliation: terminology, classification and relationship with bedding; Lineation, Unconformity.

Plate tectonics theory; Geological evidences for continental drift; Sea-floor spreading; Oceanic ridges; Continental rifts; Intra-oceanic islands; Hot spot and Mantle plumes; Wilson Cycle; Tectonic framework of Pakistan.

V. Petrology and Petrography

Introduction, classification and description of sedimentary rocks; origin; transportation and deposition of sediments; Texture of sedimentary rocks; Sedimentary structures, their classification, morphology and significance; Composition, origin, differentiation and evolution of magma; Classification of igneous rocks; Mode of occurrences and types of extrusive rocks; Texture and structure of igneous rocks; Introduction to metamorphism; Types of metamorphism; Grades, zones and facies of metamorphism; Metamorphic diffusion and differentiation; Metamorphism in relation to plate tectonics; Differentiation between metamorphism and metasomatism;

Introduction to polarizing microscope; Optical properties of opaque and non-opaque minerals in plane polarized light and under crossed nicol including metallic under reflected light; Description of optical properties of common rock forming minerals.

Part- II (50 Marks)

- I. **Introduction to Geophysics**
Definition and relation of geophysics with other sciences; Classification and brief description of various branches of geophysics such as seismology, geomagnetism, geoelectricity, tectonophysics, gravimetry, geo-thermy and geodesy; Introduction to various geophysical techniques for exploration of mineral deposits, oil and gas and subsurface water and engineering works;
- II. **Sequence Stratigraphy**
Introduction, history, concept and significance of sequence stratigraphy; Data sources: seismic reflections, outcrops, well logs, core and seismic facies; Sea level changes, their causes and effects; Accommodation, eustatic and relative sea curve; Hierarchy of sequence stratigraphic elements; Types of sequences and systems tracts.
- III. **Petroleum Geology**
The nature and classification of petroleum hydrocarbons, their origin, migration and accumulation; Source sediments, reservoir rocks, and trapping mechanism for oil and gas; Prospecting and exploration of oil and gas; Reservoir characteristics, drive mechanism, energy and pressure maintenance; Secondary and enhanced recovery; Introduction to Sedimentary Basins of Pakistan
- IV. **Engineering and Environmental Geology**
Rock and soil mechanics and its application in civil engineering; Rock mass characteristics; Geotechnical studies of rocks and soils; Geological factors and strength of rocks; Study of geological factors in relation to the construction of buildings and foundations, roads, highways, tunnels, dams and bridges; Application of geophysical methods for site investigation; Construction materials; Mass movement, their causes and prevention.
Introduction to environmental geology; Management of natural resources; Global climatic changes; Environmental controls for erosion, desertification and coastal degradation; Geological hazards such as floods, landslides, earthquakes, Tsunamis, volcanoes, glaciers and shoreline processes, their remedial measures; Clean sources of energy; Industrial pollution, solid and liquid waste disposal, Introduction to environmental impact assessment and initial environmental examination.
- V. **Mineral and Energy Resources**
Introduction of geological exploration/prospecting. Brief description of hydrocarbons, coal, gemstones, copper, lead, zinc, iron, gold, chromite, manganese, salt, gypsum, bauxite, sulphur, barite, fluorite, clays, phosphonite, building and dimension stones, industrial rocks and minerals, radioactive minerals and rocks with special reference to economic mineral deposits in Pakistan.
Origin, occurrence, and depositional environments of coal; coal Constitution and kinds of coals. Coal rank, grade and calorific value. Coal deposits of Pakistan with reference to Thar Coal. Geothermal energy resources of Pakistan.
- VI. **Economic and Applied Geology**
Metallic and Non-metallic mineral resources of Pakistan. Mineral-based industries. Overview of Recodec Copper. Radioactive minerals and their occurrences in Pakistan. Gemstones of Pakistan

Geology of Reservoirs, Dams, Highways and Tunnels. Major natural hazards and their impact on the environment with special reference to Pakistan.

SUGGESTED READINGS

S.No.	Title	Author
1.	Physical Geology	Charles Plummer, David McGeary, Diane Carlson,
2.	Physical Geology	Charles (Carlos) Plummer, Diane Carlson
3.	Principles of Physical Geology	Holmes, A
4.	Principles of Paleontology	Raup, D.M. & Stanley, S.M
5.	Vertebrate Paleontology	Romer, A.S
6.	Invertebrate Paleontology and evolution	Clakson, E.N.K
7.	Stratigraphy of Pakistan	Shah, S.M.I.
8.	Principles of Sedimentology and Stratigraphy	Boggs, S
9.	Stratigraphy and historical geology of Pakistan	Kazmi, A.H and Abbasi, I.A
10.	Igneous and Metamorphic Petrology	Best, M.G.,
11.	Introduction to Optical Mineralogy	Nesse, W.D
12.	An Atlas of Minerals in Thin Section	Schulze, D.J.,
13.	Minerals and Rocks	Klein, C.,
14.	Mineral Characterisation and Processing	Mohapatra, B.K., Misra, V
15.	Principles of Mineralogy	William. H.B.,
16.	Mineralogy	Perkins, D
17.	Plate Tectonics – Geodynamics	Moore, E.M. & Twiss, R.J
18.	Structural Geology of Rocks and Regions	George H. Davis, Stephen J. Reynolds, Charles F. Kluth
19.	Structural Geology	Twiss, R.J. & Moore, E.M.,
20.	Carbonate Sedimentology	Tucker, M.E. & Wright, V.P
21.	Applied Sedimentology	Selly, R.C.,
22.	Petrology of Sedimentary Rocks	Boggs Jr. S
23.	Sedimentary Rocks	Pettijohn, F.J
24.	Introduction to Applied Geophysics	Burger R.H., Sheehan, A. & Jones, C

S.No.	Title	Author
25.	Geophysical Methods in Geology	Sharma, P.V
26.	The Solid Earth: An Introduction to Global Geophysics	Fowler, CMR
27.	Igneous and Metamorphic Petrology	Best, M.G
28.	Petrology: Igneous, Sedimentary, & Metamorphic	Blatt, H., Tracy, R. & Owens, D
29.	Igneous and Metamorphic Petrology	Best, M.G.,
30.	Petrology: Igneous, Sedimentary, & Metamorphic	Blatt, H., Tracy, R. & Owens, D
31.	Metamorphic Petrology	Turner, F.J.,
32.	Sequence Stratigraphy	Emery, D. & Myers, K.J.,
33.	Elements of Petroleum Geology	Richard C. Selley,
34.	Petroleum Geology	North, F.K.,
35.	Geology of Pakistan	Bender, F.K. & Raza, H.A.,
36.	Engineering Geology: Principles and Practice	David George Price, Michael de Freitas
37.	Engineering Geology	F G Bell
38.	Fundamentals of Engineering Geology	Bell, F.A.G.,
39.	Environmental Geology	Montgomery, C.W.,
40.	Geology of Himalaya, Karakoram, Hindukush in Pakistan	Tahirkheli, R.A.K.,
41.	Geology of Pakistan	Bender, F.K. & Raza,
42.	Stratigraphy and Historical Geology of Pakistan	Kazmi, A.H and Abbasi, I.A
43.	Economic Geology: Principles and Practice	Walter L. Pohl
44.	Directory of Mineral Deposits of Pakistan	Zaki, A.,
45.	An Introduction to Ore Geology	Evans, A.M.,
46.	Metallogeny and Mineral Deposits of Pakistan	Kazmi, A.H. & Abbas, S.G.,
47.	Introduction to Mineral Exploration	Moon, C.J., Whateley, M.K.G. and Evans, A.M.
48.	Energy Resources	Brown and Skipsy
49.	Pakistan Energy Yearbook 2012	Ministry of Petroleum and Natural Resources Hydrocarbon Development Institute of Pakistan. Islamabad

PAPER: GOVERNANCE & PUBLIC POLICIES (100 MARKS)

- I. **Basic Concepts of Governance:**
 - Origin of the term Governance
 - Definition of Governance
 - Definition of Good Governance
 - Characteristics of Good Governance: Participation, Rule of law, Transparency, Responsiveness, Equity, Effectiveness and Efficiency, Accountability, Strategic Vision
 - Collapse/Failure of Governance: its indicators diagnostic tools & Effects

- II. **Governance Theories:**
 - Communitarianism
 - Decentered Theory
 - Libertarian Socialism
 - Institutionalism
 - Marxism
 - Neoliberalism
 - Rational Choice Theory
 - Regulation Theory

- III. **Governance Indicators laid by World Bank/IMF/UNESCO/UNDP/ADB, their Explanation & Application Level in Pakistan:**
 - Voice and Accountability
 - Political Stability and Absence of Violence
 - Government Effectiveness
 - Regulatory Authorities & their Quality
 - Rule of Law
 - Control of Corruption

- IV. **Public Policy and Planning Institutions and their role in Planning**
 - Institutional Framework for Policy Coordination and Planning (ECNEC, Economic Coordination Committees of the Cabinet, The Federal Cabinet, The Secretaries Committee, The Prime Minister's Secretariat, The Planning Commission, The Finance Division, The Cabinet Division, and all Federal Ministries for their respective subjects)
 - Role of Planning Commission in Policy and Planning
 - Strategic Planning in Federal
 - Provincial Government and Local Government
 - Role of International Donors in Policy Formulation (IMF Document "Memorandum on Economic and Financial Policies 2013/14–2015/16," that underpins almost all public policies.)
 - Public Policy and Implementation in Key Sectors (i.e., Health, Education).

- V. **Accountability:**
- General Introduction to Accountability and its concepts(Standards, Symbolism, regional and country-wide comparisons, a Review of Contemporary Studies)
 - Types of Accountability- Political Accountability, Legal/ Judicial Accountability, Administrative Accountability, Professional Accountability, Private vs. Public Accountability
 - National Strategies against Corruption and remedial measures.
- VI. **Bureaucracy:**
- Introduction to the Concept of Bureaucracy(History, Neutrality, Steel Frame of the State, Negative Connotations Associated with the term)
 - Theories of Bureaucracy (Max Weber, Marx, John Stewart Mill, Woodrow Wilson)
 - Role of Bureaucracy in Pakistan (British legacy, civil-military relations, neutrality, dilution of neutrality, political allegiance, power, corrupting the incumbent, institutional degradation, constitutional guarantees, indexing of salaries with the CPI or lack thereof.)
 - Public Administration and Code of Ethics (Effectiveness of the Estacode and the Code of Ethics, Comparison with other countries)
- VII. **Public Policy Formulation and Implementation**
- The Policy Making Process: How Policies are Made (Six including diagnosis and six stages with cautions to be exercise at each stage)
 - Policy Implementation & Role of Bureaucracy (Training, Pervasive Inertia and how to break it, Lack of Decision Making, Culture of postponement and delays, Lack of resources, Political interference, Ability to say "No.")
 - Policy Analysis, The Quest for Solutions (Lack of research in policy analysis, Lack of coordination among departments, secrecy, openness)
 - Policy Evaluation: Assessing The Impact of Public Policy, Program Evaluation- Success and failure of Govt.
- VIII. **Multi-level Governance in Pakistan:**
- Legislature: National Assembly, Senate, Provisional Assemblies
 - Judiciary: Supreme Court, High Courts, Lower Courts
 - Functioning of the offices:
 - President of Pakistan,
 - Prime Minister of Pakistan
 - Office of Governor,
 - Office of Chief Minister, Federal Cabinet, Cabinet Committees, Federal Secretariat, Provincial Secretariat
 - Local Government system: District Government, Zila Government, Tehsil Government, Union Administration, Its Efficacy, Performance & Causes of Success or Failure
- IX. **Federalism, Devolution and Decentralization**
- Constituents participation in Federal Structure
 - Principle of Subsidiarity in Public Service Delivery
 - Decentralization Model of Kerala

- X. Role of Citizens in Governance
- XI. Good Governance in Islam
- Quranic Guidance on Good Governance
 - Concept of Governance and its application in light of Quran; Sunnah and Fiqh.

SUGGESTED READINGS

S. No.	Titles	Author
1.	Governance	Anne Mette Kjær
2.	Encyclopedia of Governance, Volume 2	Mark Bevir
3.	Implementing Public Policy: Governance in Theory and in Practice.	Hill M. and Hupe P.
4.	Accountability: Managing for Maximum Results	Sam R Llyod
5.	Guidance for Good Governance: Explorations in Qur'anic, Scientific & Cross-Cultural Approaches	Abdullah Ahsan & Stephen Bonsal Young
6.	How Governments Work	Muzaffar A. Ghaffar
7.	Government and Administration in Pakistan	Dr Jamil-ur Rehman
8.	Public Administration With Special Reference To Pakistan	Dr Sultan Khan
9.	Constitution of Islamic Republic of Pakistan,	National Assembly of Pakistan
10.	Pakistan: Beyond the Crisis State	Maleeha Lodhi
11.	Power Dynamics, Institutional Instability and Economics Growth: The Case of Pakistan	Akmal Hussain
12.	Federalism and Rights	Ellis Katz and G Allan Tarr
13.	Local Government Reforms in Pakistan: Context, Content and Causes	Ali Chmeema, Asim Ijaz Khawaja and Adnan Qadir
14.	Economics Democracy Through Pro Poor Growth	PonnaWignaraja, Akmal Hussain Susil Sirivardana
15.	Governance: South Asian Perspective	Hasnat Abdul Hye
16.	Governance, Economic Policy and Reform in Pakistan	AbdusSamad
17.	"Pakistan—Problems of Governance," 1993.	Hussain, M., Hussain. A.
18.	"Pakistan's Predicament: The Diagnostic and the Debates within," <i>Journal of Pakistan Vision</i> , 13/1 (2012).	Racine, Jean-Luc.

S. No.	Titles	Author
19.	<i>The Culture of Power and Governance of Pakistan—1947-2008</i> , Oxford, 2010.	Niaz, I.
20.	"Legitimacy and the Administrative State: Ontology, History, and Democracy," <i>Public Administration Quarterly</i> , UC Berkeley, 2013.	Bevir, M.,
21.	Handbook of Public Policy Analysis	Frank Fischer, Gerald J. Miller, and Mara S. Sidney,
22.	Public Policy: Politics, Analysis, and Alternatives, 4th Ed., CQ Press, 2012	Kraft, Michael E., Scott R. Furlong
23.	Public Policy in An Uncertain World,: Analysis and Decisions, Harvard, 2013	Manski, Charles F.

PAPER: HISTORY OF PAKISTAN & INDIA (100 MARKS)

- I. **Muslim Rule and Heritage in India (712-1857):** Political History Arrival, foundation and consolidation of Muslim rule in India, important rulers of the Slave Dynasty and the Mughals. The Spirit and legacy of Muslim civilization, Art, Architecture and literature, Public Administration under Muslim Rules. Sultans, Kings, Economic, Social, Judicial, Civil and Military system during the Muslim rule, Industry, trade and commerce under the Muslim patronage, Financial Administration.
- II. **British Rule in India: 1857-1947:** British Imperialism, origin and growth of the East India Company, Causes and effects of downfall of the Mughal Empire in India, War of Independence in 1857: Causes and effects.
- III. **Constitutional and Political Reforms of the British Government (1858-1947)** and growth of the Political Parties –Indian Congress
- IV. **Muslim Struggle for Independence:** Role of Shah Wali Ullah, Syed Ahmad Shaheed and Sir Syed Ahmed Khan towards regeneration of the Muslim of South Asia, All India Muslim League, Partition of Bengal, Simla Deputation, Lucknow pact; Khilafat movement. Nahru Report Quaid-i- Azam's Fourteen Points.
- V. **Pakistan Movement:** Allama Iqal's Allahabad Address 1930, and Round Table Conference. The Congress Rule in the provinces-1937-1939, Lahore Resolution 1940, various Missions and Plans for the partition of the South Asia. Founders of Pakistan: Quaid-i-Azam, Mohsin-ul-Mulk, Syed Amir Ali, Ali Brothes. Sir Agha Khan, Chaudhry Rahmat Ali, etc.
- VI. **History of Pakistan (1947- Todate):** Pakistan's early Challenges—Quaid-i-Azam as Governor-General, various attempts at constitution making.
- VII. **Military in Politics:** Ayub Khan, Yahya, Zia-ul-Haq and Pervaiz Musharaf regimes, Civil Military Relationship in Pakistan,
- VIII. **Separation of East Pakistan: Causes and Effects,**
- IX. **Working of Democracy in Pakistan:** Liaquat Ali Khan to Firoz Khan Noon (1947-1958), Zulfikar Ali Bhutto's Period,(1971-1977), Benazir, Nawaz Sharif ,Revival of Democracy: 1988-1999, Restoration of Democracy (2008 to date), Role of Major Political Parties and Pressure Groups in the history of Pakistan.
- X. **Foreign Policy of Pakistan (1947-1999)**

SUGGESTED READINGS

S.No.	TITLE	AUTHOR
1.	Political Parties in Pakistan: 1947-58	Afzal, M Rafique, 1986
2.	Government & Politics in Pakistan	Ahmad, Mushtaq, 1970
3.	Party Politics in Pakistan: 1947-58	Aziz, K.K. 1976
4.	India's Struggle for Independence	Chandre Bipin, 1989
5.	Constitutional Development in Pakistan	Chaudhary, G.W. 1959
6.	Wavell and the Days of the Raj: Britain's Penultimate Viceroy in India,	Chawla, Muhammad Iqbal, 2011
7.	Nationalism and Communal Politics in India.	Hassan Mushirul 1991
8.	The Charismatic Leader: Jinnah and the Creation of Pakistan	Hayat, Sikandar, 2007
9.	The Culture of Power and Governance of Pakistan 1947-2008	IHAN Niaz, 2011
10.	Muslim Civilization of Indo-Pakistan.	Ikram, Shaikh Muhammad, 1966
11.	Pakistan's Failure in National Integration	Jahan, Rounaq, 1972
12.	Constitutional and Political History of Pakistan	Khan, Hamid, 2005
13.	The Muslim Politics in Punjab	Qalb-i-Abid ,S, 1992
14.	The Muslim Community of the Indo-Pak	Qureshi Ishtiaq Husain, 1962
15.	The Struggle for Pakistan	Qureshi, Ishtiaq Husain, 1965
16.	Pakistan: The Formative Phase	Sayeed, Khalid Bin, 1968
17.	The Military and Politics in Pakistan 1947-86	Rizvi Hassan Askari
18.	Pakistan A Modern History	Talbot, Lan, 1999
19.	Politics and the State in Pakistan	Waseem, Mohammad, 1989
20.	Jinnah of Pakistan	Wolpert, Stanley, 1984

PAPER: HISTORY OF USA (100 MARKS)

- I. Introduction:-
 - From ancient times to 1492
 - Advent of the Europeans to British supremacy (1492-1606)
- II. USA as a British Colony (1606-1783).
- III. USA as an Independent Country (1783 - 1819)
- IV. Expansion of USA: From 13 to 50 States (1820 - 1949)
- V. Constitution of the USA: Salient Features
- VI. Civil War between the North and the East (1850 - 1869)
- VII. Industrialization and its emergence as one of the world powers (1870 -1916)
- VIII. USA's role in the Two World Wars (i. 1914 – 1918, ii. 1939 - 1945)
- IX. Post 1945 world scenario and emergence of USA and USSR as the Two World Powers.
- X. American Role in patronizing UNO and International Organizations 1945 – 2012
- XI. American Role in Cold War and its emergence as the Sole super Power (1945 - 1990).
- XII. International Concerns of USA: An Overview.
- XIII. The War on Terror and the Role of Pakistan and USA (2001 - 2012)
- XIV. Global perceptions of the USA.
- XV. Progressive Era: Reforms of Theodore Roosevelt and Woodrow Wilson.
- XVI. The Great Depression and the New Deal
- XVII. Civil Rights Movement
- XVIII. United States Role in International Conflicts
- XIX. US Presidential Election
- XX. US Congress: Role & Functions
- XXI. Separation of Powers: Check & Balances

PAPER: INTERNATIONAL LAW (100 MARKS)

- I. **Nature, Origin and Basis of International Law.**
 - The Emergence of International Law, Early European Authors, The Nation-State System, The Enforcement of International Law, The Effectiveness of International Law, The Weakness of International Law, The Juridical Basis of International Law, The Future of International Law and Material Sources of International Law.
- II. **Relation between International Law and State Law.**
 - Article 38 of the Statute of International Court of Justice, Primary Sources of International Law, Subsidiary Sources of International Law, International Soft Law
- III. **State in General and Recognition**
 - Personality and Statehood in International Law, The Subjects of International Law, Recognition of State and Government in International Law, Recognition of State and Government in National Law.
- IV. **The Law and Practice as to Treaties**
 - The Vienna Convention on the Law of Treaties
- V. **The Settlement of International Disputes.**
 - Negotiation, Mediation and Good Offices, Inquiry, Settlement by the United Nations, Conciliation, Arbitration, The International Court of Justice.
- VI. **International Humanitarian Law.**
 - International and Non-International Armed Conflicts, Non-International Armed Conflict, 'Combatant' and 'Protected Persons', Protection of Wounded, Sick and Ship-Wrecked Persons, POWs, Civilians, Limitations on the Conduct of War, Limits on the Choice of Methods and Means of Warfare.
- VII. **The Use of Force**
 - The Law before the UN Charter, The Law after the Charter, The Collective Use of Force, The Right of Self-Defence.
- VIII. **International Institutions**
- IX. **State Territorial Sovereignty.**
- X. **State Responsibility.**
- XI. **State Jurisdiction.**
- XII. **Succession to Rights and Obligations.**
- XIII. **The State and the Individual.**
- XIV. **The State and the Economic Interest.**
- XV. **Diplomatic Envoys, Counsels and other Representatives.**
- XVI. **War, Armed Conflicts and other Hostilities.**
- XVII. **Neutrality.**

SUGGESTED READINGS

S.No.	Title	Author
1.	International Law	Malcolm N. Shaw
2.	Principles of Public International Law	Lan Brownlie
3.	International Law	Dr. S.K. Kapoor
4.	Introduction to International Law	J.G. Starke, QC
5.	International Humanitarian Law	ICRC Pakistan
6.	Extradition Act, 1972	Nil
7.	The Diplomatic and Consular Privileges Act, 1972	Nil
8.	Territorial Waters and Maritime Zone Act, 1976	Nil
9.	U.N. Convention on Law of the Sea, 1984	Nil
10.	Cases and Materials on International Law	D.J. Harris

SUGGESTED READINGS

S.No	Title	Author
1	The Ideological Origins of the American Revolution.	Bailyn, Bernard, 1992
2	A Pocket History of the United States	Connager, H and Nevin, Allan, 1967
3	Painless American History.	Curt Lader, 2009
4	The Politically Incorrect Guide to American History	F Woods, Thomas Jr., 2004
5	The Civil War: A Narrative	Loote, Shelby, 1986
6	The American Political Tradition and the Men Who Made it	Hofstadter Richard 1948
7	US South Asian Relations 1784 – 1940: A History Perspective.	Ifkhar H Malik, ed. 2006
8	The Tragedy of Great Power Politics	Mearsheimer, John, 2001
9	Enlightenment Revolution and the Birth of Modern Nation	Nelson, Craig, Thomas Paine, 2006
10	The USA 1917 – 1980	Smith, Nigel, 2006
11	American Colonies: The Selling of North America	Taylor, Alan, 2002
12	White Over Black: American Attitudes Toward the Negro 1550 – 1812	Winthrop D. Jordan.
13	The Complete Book of U.S. Presidents	William A. De Gregorio, 2005
14	A people's History of the United States 1492 to Present	Zinn, Howard, 1980

PAPER: _____ INTERNATIONAL RELATIONS _____ (200 MARKS)

Paper—1 (Marks-100)

- I. **Introduction**
 - The Definition and Scope of International Relations.
 - The Nation-State System
 - Evolution of International Society
- II. **Theories and Approaches**
 - The Classical Approaches-Realism and idealism
 - The Scientific Revolution-Behavioral Approach, System Approach,
 - Neo-realism, Neo-liberalism.
 - Post-modernism, Critical Theory, Feminism, Constructivism
- III. **International Political Security.**
 - Conceptualization of security in the twenty-first century
 - Power. Elements of National Power
 - Balance of Power
 - Foreign Policy: Determinants, Decision making and analysis
 - Sovereignty
 - National Interest
- IV. **Strategic Approach to International Relation.**
 - War: Causation of War, Total War, Limited War, Asymmetric Warfare, civil war, Guerilla war
 - Strategic Culture: Determinants of Pakistani Strategic Culture.
 - Deterrence: Theory and practice with special reference to Nuclear India and Pakistan
- V. **International Political Economy.**
 - Theories in IPE: Mercantilism, Economic Liberalism, and neo- Marxism
 - Theories of Imperialism, Dependence and Interdependence
- VI. **International political community.**
 - Nationalism
 - Internationalism
 - Globalization

- VII. **Approaches to Peace**
 - Diplomacy
 - International Law
 - Arms Control /Disarmament and Nuclear Non proliferation Regime
- VIII. **International Political Institution**
 - United Nations
 - International Monetary Fund (IMF)
 - World Bank
 - International Court of Justice

Paper- II (Marks-100)

- I. **International Relation between two Wars**
 - Russian Revolution, Fascism, League of Nations, Second World War
- II. **Cold War**
 - Decolonization in Asia and Africa.
 - Rise of United States and Soviet Union,
 - Era of Tight Bipolarity, Détente and Loose Bipolarity, Revival of Cold War
- III. **Post Cold War**
 - End of History, Clash of Civilization, Terrorism, Globalization, unipolarity New world Order
- IV. **International and Regional Organizations**
 - League of Nation, United Nations, Regional Organizations, EU, ASEAN, NAFTA, SAARC, SCO, OIC, ECO, WTO.
 - Reforms in the United Nations, World Bank and the IMF
- V. **Foreign Policy of Selected Countries**
 - USA, Russia, China, UK, India, Pakistan and EU
- VI. **South Asia**
 - Peace-making and Peace-Building in South Asia: Analytical overview of peace processes between/among the states of South Asia especially between India and Pakistan.
 - India and Pakistan: Overview of agreements and accords, Indus Water Treaty; Composite Dialogue; Sir Creek & Siachen border, Visa and People to people contact; Trade; and Role of civil society
 - Afghanistan: Cold war theatre; Soviet Invasion Mujahedeen; Geneva Accord; Post Cold War situation--Rise of Taliban, AL-Qeada & 9/11; Operation Enduring Freedom; The Bonn Process- Withdrawal
- VII. **Weapons of Mass Destruction**
 - Proliferation of Nuclear Weapons

- Nuclear Weapon States- Programs and Postures: Indian-Pakistan Nuclear Doctrines
- Nuclear Non -Proliferation Regime: International Atomic Energy Agency, Nuclear Non- proliferation Treaty, Nuclear Supplier Group, Partial Test Ban Treaty, Comprehensive Test Ban Treaty, Fissile Material Cut-off Treaty
- Challenges of Non-Proliferation, Nuclear Civil Deal Regime
- The Missile Defence Systems and their impact on global strategic environment
- Militarization and Weaponization of Space.

VIII. Contemporary Issues

- Euro-Atlantic Vs. Asia Pacific: Great Powers Policies
- Kashmir Issue
- Palestine Issue

SUGGESTED READINGS

S.No.	Title	Author
1.	World Politics: Trend and Transformation, Ninth Edition	Charles W. Kegley JR. and Eugene R Wittkopf
2.	Understanding International Relations, Second Edition	Chris Brown
3.	Politics Among Nations	Hans j. Morgenthau
4.	International Politics: A Framework for Analysis	Holsti, K.J.
5.	Contemporary Security and Strategy	Craig A. Snyder (ed.),
6.	The Globalization of World Politics: An Introduction to International Relations	John Baylis and Stev Smith, eds
7.	Games Nations Play, Seventh Edition	John Spanier
8.	Essentials readnigs in World Politics	Karen Mingst
9.	World in Collision: Terror and the Future of Global Order	Ken Booth and Tim Dunne, ed
10.	Theory of International Politics	Kenneth N. Waltz
11.	Theories of International Relations	Scott Burchill and Andrew Linklater
12.	The Cause of Wars	Michael Howard
13.	Politics of Nuclear Weapons in south Asia	Bhumitra Chakma, ed
14.	The Twenty Year's Crisis ; 1919-1939:An Introduction to the Study of International Relation	E.H. Carr
15.	Bomb Scare: The History and Future of Nuclear Weapons	Joseph Cirincione

S.No.	Title	Author
16.	Arms Control: The New Guide to Negotiations and Agreements	Jozef Goldblat
17.	Explaining Foreign Policy	Llyod Jenson
18.	The International Politics of Space	Michael Sheehan
19.	Foreign Policy Making Process: A Case Study of Pakistan	Moonis Ahmar, ed
20.	Planning the Unthinkable How New Powers Will Use Nuclear Biological And Chemical Weapons	Peter R. Lavoy, Scott D Sagan, and James J. Wirtz
21.	Pakistan's Foreign Policy : An Historical Analysis	S.M. Burke
22.	International Relations: Politics and Economy in the 21st Century	William Nester
23.	Foreign Policy and Political process	William Wallace
24.	Nuclear Risk Reduction Measures and Restraint Regime in South Asia	Zafar Nawaz Jaspal
25.	The India- Pakistan Military Standoff, Crisis and Escalation in South Asia (United States)	Zachary S. Davis, ed
26.	Nuclear Pakistan: Strategic Dimensions	Zulfiqar Khan, ed

PAPER: ISLAMIC HISTORY AND CULTURE (100 MARKS)**Part –I (Marks 50)**

- I. **Pre-Islamic Near East: An Overview**
 - Political, Social, Cultural, Religious and Economic Conditions in the Near East including Arabia before the dawn of Islam
- II. **The Dawn of Islam: The Prophetic Age (570-632)**
 - Biography of the Prophet Muhammad (PBUH): A Chronology of the Major Events in his Life
 - Prophet Muhammad (PBUH) as a Motivator (Daa'i), Major points of his mission
 - Prophet Muhammad (PBUH) as a Military Leader/Strategist
 - Prophet Muhammad (PBUH) as a Political Leader/Head of the State
- III. **The Pious Caliphate (632-660)**
 - Caliph Abu Bakr (632-34): Apostasy Wars and Consolidation of Islam
 - Caliph Umar b.Khattab (634-44): Establishment of Administrative System and Expansion of Muslim Empire
 - Caliph Uthman b.Affan (644-56): Problems and Issues in the Muslim Community
 - Caliph Ali b.Talib (656-660): Rise of Factionalism
 - Abdication of Imam Hasan and Establishment of Umayyad Dynasty (660)
- IV. **Political System of Islam under the Prophet (PBUH) and the Pious Caliphate**
 - Nature of Islamic State
 - Form of the Government
 - Functions of the Islamic State
 - Sovereignty of God
 - Caliphate or Vicegerency of Man
 - Appointment of Caliph
 - Shura or the Consultative Body and its Role
- V. **Institutional Development of the Muslim Civilization: The Early Phase (622-660)**
 - Development of Law and Judiciary in Early Islam
 - Administration and State Conduct
 - Defense in Early Islam
 - Educational System
 - Propagation of Islam
 - Financial Administration
 - Heritage and Culture

VI. The Umayyad in Power (660-749)

- Political History of the Umayyad Dynasty
- Statecraft and Administration under the Umayyads
- Society and the Development of Arabic Literature.
- Cultural achievements

Part –II (Marks 50)

I. The Abbasids of Baghdad (749-1258)

- The Abbasid Revolution and the Establishment of the Abbasid Dynasty
- Administrative Structure under the Abbasids
- Development of Scientific Knowledge under the Abbasids
- Muslim Philosophy under the Abbasids
- Cultural achievements

II. Spain under the Muslim Rule

- Spain under the rule of the Arabs and Moors (711-1492)
- Political Fragmentation and the Fall of Granada (1492)
- Muslim Contribution in the Realm of Culture, Arts and Architecture

III. The Crusades against Islam

- Major Encounters and Actors (1092-1228)
- Impact of the Crusades on Muslim-Christian Relations

IV. The Ottoman Empire

- Rise and Fall of the Ottoman Turks (1299-1923)
- State, Society and Economy under the Ottomans
- Treatment with the Religious Minorities
- Contribution towards Culture, Arts and Architecture

V. Sufism as an Institution of the Muslim Society

- Origin and Development of Sufism
- Contribution of the Sufis to the Muslim Civilization
- Relationship of the Sufis with the State and Political Authorities.
- A critical Look at Sufism

VI. Islam and Modernity in Contemporary World

- The Emergence of Islamic Modernism
- Intellectual, Political, Economic, Social and Educational Aspects of Islamic Modernism
- Dissemination of Muslim Learning in the West

SUGGESTED READINGS

S.No	Titles	Author
1.	Discovering Islam—Making Sense of Muslim History and Society	Ahmad, Akbar
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.	The History of Islamic Peoples	Brockelmann, Carl (ed)
8.	Spanish Islam	Dozy, R.
9.	Studies on the Civilization of Islam	Gibb, Ham
10.	The Religion of Islam, Vol. I & II	Gaqwash, 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.	Islamic History.	Munir, Muhammad
16.	Islam and The Modern World	Nadvi, 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.	The Abbasid Revolution	Shaban, M.A.
23.	A History of Muslim Philosophy	Sharif, M.M.
24.	Muslim Thought :Its Origin and Achievements	Nadvi Muhammad Hanif
25.	Studies in Islamic History	Siddiqi, Amir Hassan.
26.	The Revolution which Toppled the Umayyads Neither Arab nor Abbasid	Agha, Saleh Said
27.	Sirat un Nabi Vol. I & II	Noumani, Shibli
28.	Rasol-e-Akram ki Siasi Zindagi	Hamidullah, Dr. Muhammad
29.	Khilafat-o-Malokiat	Syed Abul Aala Maudoodi
30.	Ahd-e-Nabawi main Riyasatka Nash o Irtaqa	Ahmad, Dr. Nisar

S.No.	Titles	Author
31.	Siddiq-e-Akbar	Akbarabadi, Saeed Ahmad
32.	Al-Farooq	Noumani, Shibli
33.	History of Islam	Najeebabadi, Akbar sha'
34.	Painting in Islam	Thomas, Sir A.
35.	Early Islamic Pottery	Lane, A.
36.	Muslim Calligraphy	Ziauddin, M.
37.	Islamic Art & Architecture	Kuhnel, E.
38.	Daira Ma'arif e Islamia (relevant articles)	University of Punjab
39.	The Cultural Atlas of Islam	Isma'il Raji al-Faruqi & Lois Lamy' al-Faruqi

PAPER: JOURNALISM & MASS COMMUNICATION (100 MARKS)**I. Introduction to Mass Communication**

- Concept – Definitions, Need/Importance/Purposes, Types of Communication, Process of Communication, Basic Models.
- Functions of a model, Evaluation of a model
- Basic models in Mass Communication: -
 - Lasswell's Model (1948)
 - Shannon-Weaver model (1948)
 - Osgood,s model (1954)
 - Schramm's model (1954)
 - Newcumb's symmetry theory (1953)
 - Westley-McLean's model (1976)
 - Gerbner model (1956)

II. Mass Communication Theories

- Normative theories of the press: Schramm's four theories and criticism on these theories
- Media as agents of power
- The Spiral of silence
- Media Usage and gratifications
- Media hegemony
- Diffusion of innovations
- Powerful effects model: hypodermic needle, silver bullet
- Moderate effects model: two-step and multi-step flow of communication.
- Powerful media revisited: Marshal McLuhan's media determinism

III. Global / International Communication

- The Historical Context of International Communication
- Globalization, technology, and the mass media
- Communication and Cultural imperialism
- Communication Flow in Global Media: Imbalance in the flow of information between North and South
- McBride commission and its recommendations.
- International Communication in the Internet Age: the new social media and its effects on developing world

IV. Media and Society

- Mass media and social change
- Media as a social system: The balance between interrelation and interdependence
- Media freedom and its role for democracy,
- The functional approach to mass media: four social functions of the media
- Media as an awareness agent
- Mass media and social representation

V. Mass Media in Pakistan:

- Media system in Pakistan: historical, chronological, and analytical review
- The system of journalism and the media system
- Employer-employee relations in Pakistani media
- Government-press relations
- Press in Pakistan: The newspaper industry, from mission to the market
- Electronic media: from total dependence to enormous power
- The new 24/7 television: uses and abuses
- The new radio: potential for change and the present performance.
- The question of freedom and responsibility

VI. Development Support Communication

- Theories of development support communication with specific focus on the developing world
- The dominant paradigm of development: historical, analytical perspective
- The Alternative paradigm of development
- Small is beautiful: community development as a snowball effect.
- Globalization vs Localization
- Glocalization
- Social Marketing: how to infuse new ideas into a developing population

VII. Public Relations:

- Concept of Public Relations
- Historical development of public relations: from press agency to PR
- Public relation in Pakistan
- Ministry of information
- Press Information Department (PID)
- Public relations and publicity
- PR as a tool for governance
- Private PR agencies and their structure

- Basic methods of PR: press release, press note, press conference
- PR Ethics

VIII. Media Laws and Ethics:

- History of Media Laws in Pakistan
- Development of media regulations from British colonial era to independent Pakistan
- Libel, Defamation and relevant portions of PPC
- PPO, RPPPO
- PEMRA: establishment, development, and operational mechanisms
- Press Council of Pakistan (PCP)
- Citizens Media Commission: need, present status, and reasons for inactivity
- Press Code of Ethics
- Inability of the media to develop a code of ethics as an institution
- The media's quest for freedom and its inability to self regulate.

SUGGESTED READINGS

S No.	Title	Author
1.	Broadcast Regulations: the German Example	Metzger, Herbert. FES 1993.
2.	Communication Models for The Study of Mass Communication, 2 nd Ed	McQuail, Dennis & Windhal, Swen, Longman, 1982.
3.	Convergence Culture: Where old and new Media	Blackwell publishing Ltd, USA.
4.	Communication Theories: Origins, Methods and Uses in the Mass Media 5 th Ed	Werner J. Severin, James W. Tankard Jr. Longman, 1997.
5.	Diffusion of Innovations 5 th Ed.	Rogers, Everett M. Free Press 2003
6.	Ethics in Journalism: A Reader on Their Perception in the Third World	Kunczik, Michael (Ed.). FES 1999.
7.	Handbok of International and Intercultural Communication 2 nd Ed	Gudykunst & Mody, Sage, 2001.
8.	McQuail's Mass Communication Theory, 4 th Ed	Denis McQuail. Sage, 2000.
9.	Media And Society into the 21 Century: A Historical Introduction.	Blackwell publishing Ltd, USA.
10.	"Media / Impact"	Wads Worth/ Thompson Learning, Belmont, CA
11.	"Media Now: Communication Media in the Information Age"	Wads Worth/Thompson Learning, Belmont, CA
12.	News Media and Journalism in Pakistan	Khan, Altaf. LAP Lambert Academic Publishing. June 2011.
13.	News Media and Journalism in Pakistan and Germany (Ed.)	Khan, Altaf. Peshawar, 2003.

S No.	Title	Author
14.	Participatory Development	Hasan, Arif, Oxford, 2010.
15.	Political Communication in Britain: The Leader Debates, the Campaign and the Media in the 2010 General Election, (Ed)	Palgrave McMillan, UK
16.	Political Communication in Asia,	Routledge, NY.
17.	"Precision Journalism: A Reporter's Introduction to Social and Science Methods", 4 th Ed	Rowman and Littlefield, Lanham, MD.
18.	Report and Recommendations of the Media Commission, appointed by the Supreme Court of Pakistan, 2013	FES, Islamabad, 2013.
19.	Reporting the Frontier: Media Capacity Building for Peace in Pakistan's Tribal Areas	Khan, Altaf VDM Verlag Dr. Müllere.K. June 2011.
20.	"Writing, Directing, and Producing Documentary Films and Videos", 3 rd edition	Carbondale: Southern Illinois Press, 2002.
21.	"Directing the Documentary", 4 th edition	Focal Press, 2004.
22.	"Documentary Storytelling: Making Stronger and More Dramatic Nonfiction Films", 2 nd edition	Focal Press, 2007.
23.	Principles of Editing	McGraw-Hill 1996
24.	Journalism-Principles and Practices	Vistaar Publications 2006
25.	The Hand Book of New Media	London: Sage
26.	Applying Communication Theory for Professional Life: An Introduction (2 ND Edition)	London: Sage
27.	Controversies in Contemporary Advertising	Newbury Park: Sage Publications
28.	"Public Relations-Writing & Media Techniques"	Harper Collins College Publishers, NY
29.	Telecommunications Policy in Pakistan"	Telematics and Informatics
30.	"Guaranteeing Copyright- Media Manager's Guide to Pakistani Broadcast Law"	Media Manager Companion Series Internews Pakistan
31.	"Model Freedom of Information Act", 2001	Consumer rights Protection Commission of Pakistan

PAPER:

LAW

(100 MARKS)

I. Definitions of Crime

II. All Provisions of:

- i. Concept of arbitration, arbitration with or without intervention of court and in civil suits.
- ii. Establishment of Civil Courts with their Original & Appellate Jurisdiction.
- iii. The Code of Civil Procedure, 1908
- iv. Pakistan Panel Code, 1860
- v. Qanun-e-Shahdat Order, 1984
- vi. Criminal Procedure Code, 1898
- vii. Limitation Act, 1908

SUGGESTED READINGS

S.No.	Title	Author
1.	Pakistan Panel Code, 1860	M. Mahmood
2.	Criminal Procedure Code, 1898	Shaukat Mahmood
3.	Law of Evidence	Justice (R) Khalid ur Rahman Khan as adapted form Principles and Digest of the Law of Evidence by M. Monir
4.	Qanun-e-Shahdat Order, 1984	
5.	The Code of Civil Procedure, 1908	Aamir Raza A. Khan
6.	The Arbitration Laws in Pakistan	M. Mahmood
7.	Civil Courts Ordinance, 1962	Nisar Ahmad Nisar

8. Limitation Act, 1908

Limitation Act, 1908

PAPER: MERCANTILE LAW (100 MARKS)

- I. **Law of Contract, 1872**
 - Definitions
 - Essentials of a valid contract (Proposal, Acceptance, Consideration, Free consent, Capacity of Parties, Not hereby declared to be Void)
 - Kinds of Contracts (Valid, Void, Voidable, Not Voidable)
 - Variety of Contracts (Contingent, Quasi, Bailment, Pledge, Indemnity, Agency)
 - Performance of Contract, contracts need not to be performed.
 - Breach of contract, consequences of breach, damages for breach of contract.

- II. **Sales of Goods Act, 1930**
 - Definitions
 - Differences: Sale & agreement to sell, conditions and warranties, express & implied conditions.
 - Doctrines: Caveat emptor, Nemo dat
 - Right and duties of seller & buyer, rights of unpaid seller.

- III. **Partnership Act, 1932**
 - Definitions
 - Essentials of partnership
 - Kinds of partnership (partnership at will, particular partnership, limited partnership)
 - Rights and duties of Partners
 - Relation of partners to third persons (implied authority of partner, doctrine of holding out)
 - Incoming and outgoing partners (minor)
 - Dissolution of firms (compulsory, by agreement, by court, by notice on happening of contingencies)

- IV. **Negotiable Instrument Act, 1881**
 - Definitions
 - Types of negotiable instruments (Cheque, bill of exchange, promissory note)
 - Parties to instruments, holder & holder in due course
 - Rules (as to negotiation, presentment, payment & interest, discharge, noting and protest, compensation, acceptance, payment for honour)
 - Special rules of evidence
 - Special provisions relating to cheques & bills of exchange (dishonor, duties of banker)
 - Provisions as to foreign instruments

V. Competition Act, 2010

- Definitions
- Prohibition and abuse of (dominant position, certain agreements, discipline, marketing practices)
- Approval of mergers
- Competition commission of Pakistan (established, composition, term)
- Functions and powers of commission
- Provisions as to penalty and appeals.

VI. Electronic Transaction Ordinance, 2002

- Definitions
- Recognition and presumption of electronic transactions (writing, signature, stamp duty, attestation etc.)
- Electronic documents (attribution, acknowledgement, time and place of dispatch)
- Certification of service providers
- Application to acts done outside Pakistan
- Offences & Nature (false information, false certificates, damage to information system etc)

VII. The Arbitration Law in Pakistan

- Definitions
- Appointment, number and removal of arbitrator
- Award by arbitrator
- Powers of court upon award (remittance, modification and setting aside of award)
- Types of arbitration (with or without intervention of court)
- Stay of legal proceedings in presence of arbitration agreement

VIII. Consumer's Protection Act, 2006

- Definitions
- Consumer Commission (establishment, powers and functions, complaints before commission and disposal)
- Provisions as to compulsory recall of goods
- Duties and liabilities of provider of goods (return and refund of goods)
- Offences and penalties
- Contract between consumer and provider

IX. Companies Ordinance, 1984

- Definitions
- Types of Companies
- Fundamental papers of company (Memorandum of association, articles of association, prospectus)
- Transfer of shares and debentures
- Management and administration (promoters, share holders, directors, chief executive, auditors)
- Meeting's and proceedings (statutory, general, annual general meeting)
- Winding up (voluntary, by court)

X. Electronic Fund Transfer Act, 2007

- Definitions
- Payment system and their operation (designation of payment system & revocation, real time gross settlement system, governance & operation arrangement)
- Payment instruments (designation, issuing and prohibition of instruments)
- Clearing and other obligations
- Supervisory Control of state bank
- Documentation of transfers
- Notification of error and liabilities of parties
- Law relating to action before court.

SUGGESTED READINGS

S. No.	Title	Author
1.	Law of Contract	Agarwala, M. Mehmood
2.	Sales of Goods Act	Pollock & Mulla
3.	Bare Acts:	Government of Pakistan
i)	Contract Act, 1872	
ii)	Negotiable Instrument Act, 1881	
iii)	Sale of Goods Act, 1930	
iv)	Companies Ordinance, 1984	
v)	Arbitration Act, 1947	
vi)	Competition Act, 2010	
vii)	Electronic Transactions Ordinance, 2002	
viii)	Consumer's Protection Act, 2006	
ix)	Electronic Fund Transfer Act, 2007	
4.	Case Law Reading	
i)	Carlil vs. Carbolic Smoke Ball Co. (1893) 1 QB 256	

S. No.	Title	Author
ii)	Pharmaceutical Society of Great Britain vs. Boots Cash Chemicals Ltd. (1952) 2 QB 795	
iii)	Curie vs. Misa (1875) LR 10 Ex 153	
iv)	Byrne & Co. vs. Van Tienhaven & Co. (1880) 5 CPD 344	
v)	Mohri Bibi vs. Dharmodas Ghose (1903) 30 IA 114	
vi)	Derry vs. Peeks (1889) 14 App. Cas 337	
vii)	Mannu Singh vs. Umadat Panday (1890) 12 ALL 523	
viii)	Coggs vs. Bernard (1703) 2Ld Raym 909	
ix)	Lumley vs. Wanger (1852) EW HC (Ch)J 96	
x)	Manni Devi vs. Ramayan Singh AIR 1985 Pat. 35	
xi)	Lachhman Joharimal vs. Bapu Khandu (1869) 6 Bombay High Court Reports 241	
xii)	Mischeff vs. Springett (1942) 2 KB 331	
xiii)	Watson vs. Coupland (1945) 1 all er 217	
xiv)	Ashbury Railway Carriage & Iron Co. Ltd. Vs. Riche (1875) LR 7HL 653	
xv)	Lee vs. Lee's Air Farming (1960) 3 All ER420	
xvi)	Salomon vs. A. Salomon & Co. Ltd. (1897) AC 22	
xvii)	Royal British Bank vs. Turqnand (1856) 6 E&B 327	
xviii)	Ram Raja Ram vs. Dhirba Charan Jen AIR 1982 Ori 264	
xix)	Badridas Kothari vs. Megraj Kothari AIR 1967 Cal 25	
xx)	Hitachi Ltd. & others vs. Rupali Polyester & others (1998 SCMR 1618)	
xxi)	Marflower Theatre Trust Ltd. Vs. HMRC (2007) STC 880	
xxii)	Pickering vs. Bux (1812) 15 East 38	
xxiii)	Liaqat Islam vs. State (2011 YLR 2280)	
xiv)	Alamgir Khalid Chughtai vs. State (PLD 2009 Lahore 259)	
xv)	United States vs. Forty Barrels and Twenty Kegs of Coca Cola, 241 U.S. 265 (1916)	
xvi)	Hedley Byrne & Co. Ltd. Vs. Hella & Partners Ltd. (1964) AC 465	

PAPER: MUSLIM LAW & JURISPRUDENCE (100 MARKS)

- I. The Sources of Islamic Law
 - The Quran
 - The Sunnah
 - Ijma
 - Qiyas
 - Ijtihad
- II. Principles of Islamic Jurisprudence
- III. Islamic Criminal Law
 - Hadd
 - Taz'ir
 - Qisas and Diyat
- IV. Islamic Family Law
 - Marriage
 - Dower
 - Divorce
 - Separation by Repudiation (Talaq)
 - Separation by Mutual Agreement (Khula)
 - Judicial Separation (Faskh)
 - Post-Divorce Maintenance
 - Child Custody
 - Succession
- V. Islamic Law of Contract
- VI. Islamic Banking and Insurance
- VII. Islamic International Law
- VIII. Islamic Law and Human Rights
- IX. Dissolution of Muslim Marriages Act, 1939
- X. Muslim Family Ordinance 1961

SUGGESTED READINGS

S.No.	Title	Author
1.	An Introduction to the Study of Islamic Law	Dr. Hussain Hamid Hassan
2.	Principles of Islamic Jurisprudence	Mohammad Hashim Karnali
3.	Theories of Islamic Law	Prof. Imran Ahsan Nyazee
4.	Islamic Law of Contracts and Business Transactions	Tahir Mansuri
5.	Family Law in Islam	Dr. Mohammad Tahir Mansuri
6.	Outlines of Islamic Jurisprudence	Prof. Imran Ahsan Nyazee
7.	General Principles of Criminal Law	Prof. Imran Ahsan Nyazee
8.	State and Legislation in Islam	Dr. Mahmood Ahmad Gazi
9.	Mahomedan Jurisprudence	Abdur Rahim
10.	Islamic Law of Inheritance	Hamid Khan, Advocate
11.	Munir" Principles of Muhammadan Law	Munir Ahmad Siddiqui

PAPER: PHILOSOPHY (100 MARKS)

- I. Introduction:**
Definition, Nature and Scope of Philosophy
- II. Philosophical Methods:**
Socratic Method (Socrates); Inductive Method (Bacon, Mill); Deductive Method (Aristotle, Descartes); Dialectical Method (Hegel); Fallibilistic Method (Popper)
- III. Epistemology:** Rationalism (Plato, Descartes, Spinoza); Empiricism (Locke, Berkeley, Hume); Transcendentalism (Kant); Intuitionism (Bergson)
- IV. Ontology:** Idealism (Plato, Berkeley); Representative Realism (Locke); Materialism (Marx)
- V. Muslim Thinkers:** Allama Iqbal, Imam Ghazali, Al-Farabi, Ibn-e- Sina, Ibn-e-Khaldun, Ibn-e-Rushid, Shah Wali Ullah
- VI. Ethics:** What is morality? The challenge of cultural relativism: Does morality depend on religion. Psychological and ethical egoism: Virtue Ethics (Aristotle), Moral Absolutism (Kant), Utilitarianism (Mill), Social Contract Theory.
- VII. Contemporary Philosophical Movements:**
Existentialism (Heidegger, Sartre); Pragmatism (Peirce, James, Dewey); Neo-pragmatism (Rorty); Postmodernism (Lyotard, Foucault, Derrida)

SUGGESTED READINGS

S.No.	Title	Author
1.	History of Western Philosophy	Bertrand Russell
2.	Philosophy: The Power of Ideas	Brooke Noel Moore & Kenneth Bruder
3.	Elements of Moral Philosophy	James Rachels
4.	Existentialism & Human Emotions. Philosophical Library	Jean Paul Sartre
5.	The Postmodern Condition: A Report on Knowledge	Jean-Francois Lyotard
6.	Descartes to Derrida: An Introduction to European Philosophy	Peter Sedgwick
7.	Continental Philosophy in the 20 th Century.	Richard Kearney
8.	A Short History of Modern Philosophy	Roger Scruton
9.	A history of Muslim Philosophy. Vol-I & II	M. M. Sharif
10.	A History of Islamic Philosophy	Majid Fakhry
11.	The Re-construction of Religious Thoughts in Islam	Muhammad Iqbal

S.No.	Title	Author
12.	Iqbal	Mustansir Mir
13.	Stanford Encyclopedia of Philosophy (plato.stanford.edu).	Internet Resources
14.	Internet Encyclopedia of Philosophy (www.iep.utm.edu).	Internet Resources

PAPER: PHYSICS (100 MARKS)

I. **Mechanics**

- Vectors—Dots, Cross and triple products, Gradient, divergence and applications.
- Newtonian laws of motion; calculus based approach to kinematics, forces and dynamics, conservation law of energy; conservation of linear and angular momentum; Dynamics of rigid body; spin and precession; gyroscope; Gravitation; planetary motion and satellites; Kepler's laws; centripetal forces
- Special theory of relativity, Michelson—Morley experiment and Einstein's postulates; Lorentz transformation; time dilation and length contraction; equivalence of mass and energy.

II. **Fluid Mechanics**

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

III. **Waves and Oscillation, Optics**

- Free oscillation with one and two degrees of freedom; forced and damped oscillations and phenomenon of resonance. Simple harmonic motion. Traveling waves and transmission of energy; Phase and Group velocity; standing waves. Basics of sound 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, lasers and applications.

IV. **Heat and Thermodynamics**

- Perfect gas and Van der Waals equation; Three Laws of Thermodynamics, internal energy, temperature, entropy. 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.

V. **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 resulting 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. Maxwell's equations in integral and differential form.

VI. Modern and Quantum Physics

- Operators and quantum states, observables, time dependent and independent Schrodinger equation, angular momentum, spin-1/2 particle in a magnetic field, wave mechanics, particle in a box, tunneling, one-dimensional harmonic oscillator, Heisenber's uncertainty relationship and indeterminacy based on commutation properties of operators, 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.

VII. Solid State Physics

- Crystal lattice and structure, Bravais lattice, free electron model, Band theory and electron in a periodic potential, Fermi energy and density of states, n and p type semiconductors, physics of the transistor and MOSFET, dielectric properties, magnetic properties and origin of magnetism.

VIII. Nuclear Physics

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

SUGGESTED READINGS

S. No.	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	Heat and Thermodynamics.	D. Zemansky
5	Introduction to Quantum Mechanics	D. Griffiths
6	Modern Physics	Serway, Moses, Moyer.
7.	Solid State Physics	C. Kittel

PAPER: POLITICAL SCIENCE (200 MARKS)

PAPER I- (Marks - 100)

Part-A (50 Marks)

I. Western Political Thought:

Plato, Aristotle, Machiavelli, Montesquieu, Hobbes, Locke, Rousseau, Kant, Mill, Bentham, Hegel, Marx, Lenin, Mao, Gramsci, Kai Popper, Pierre Bourdieu, John Rawls, Frances Fukuyama, Foucault, Derrida Kierkegaard, Jean Paul Sartre, Rene Descarte

II. Muslim Political Thought:

Al-Farabi, Al-Marawardi, Abne-Rushid, Imam Ghazali, Ibne-Taymiyya, Nizam-ul-MulkTusi, Al-Ghazali, Ibn-i-Khuldun, Shah Waliullah, Allama Muhammad Iqbal, Jamaluddin Afghni, Rashid Rida,

Part -B (50 Marks)

III. State System:

The nature and emergence of modern nation-state system, Islamic concept of state and Ummah

IV. Political Concept (Western and Islamic):

Sovereignty, Justice, Law, Liberty, Freedom, Equality, Rights and Duties, Human Rights, Political authority and Power.

V. Comparative Politics:

Political Socialization, Political Culture, Political Development, Political Recruitment, Social Change, Civil Society, Violence and Terrorism in Politics, Gender and Politics, Women Empowerment.

VI. Political Participation:

Political Change and Revolution, Elections, Electoral System, Public Opinion, Propaganda, Political Parties, Pressure Groups and Lobbies.

VII. Political Institutions and Role of Government:

Legislature, Executive, Judiciary, Political Elites, Civil-Military and Bureaucracy.

VIII. Forms of Government:

Monarchy, Democratic, Dictatorship, Totalitarian/Authoritarian, Unitary, Federal, Confederation, Presidential and Parliamentary

IX. Political Ideologies:

Capitalism, Marxism, Communism, Socialism, Totalitarianism, Fascims, Nationalism, Islamic Political Ideology

X. Local Self Government:

Theory and practice of Local Self-Government with special reference to Pakistan, Comparative analyses of systems of local governance, Public Administration and Public Policy

PAPER-II (MARKS-100)

Part-A (30 Marks)

I. Comparative and Analytical Study of the Political Systems:

Political System of U.S.A, U.K, France and Germany

II. Global and Regional Integration

Globalization and Politics, Global Civil Society, Regional politico-economic integration and organizational structure of the European Union, SARRC, ECO, International Financial Regimes IMF and WTO

Part-B (70 Marks)

III. Comparative and Analytical Study of the Political Systems:

Political system of Turkey, Iran, Malaysia, India and China

IV. Political Movements in India (Colonial Period):

Rise of Muslim Nationalism in South Asia and Pakistan Movement (with special reference to the role of Sir Syed Ahmed Khan, Iqbal and Quaid-i-Azam Mohammad Ali Jinnah)

V. Government and Politics in Pakistan:

Constitution making from 1947 -1956, A comparative and critical analysis of 1956, 1962, 1973 Constitutions of Pakistan, Constitutional Amendments up-to-date, Federal structure in Pakistan, and Central-Provincial relations after 18th amendments,

Political Culture of Pakistan, political developments and the Role of civil and military Bureaucracy, Judiciary, feudalism, Dynastic Politics, Political Parties and Interest Groups, elections and Voting Behavior, Religion and Politics, Ethnicity and National Integration,

VI. International Relations:

History of International Relations: Post WWII Period

Foreign Policy of Pakistan: National Interests and Major Determinations i-e

- 1). Size/Geography
- 2). Economic Development
- 3). Security
- 4). Advancement in Technology
- 5). National Capacity
- 6). Political Parties/Leadership
- 7). Ideology
- 8). National Interest
- 9). Role of Press/Bureaucracy

- 10). Social Structure
- 11). Public Opinion
- 12). Diplomacy.
- 13). Foreign Policy-making Process in Pakistan

Also external factors like International Power Structure, International Organizations, World Public Opinion and reaction of other states.

SUGGESTED READINGS

S. No.	Title	Author
1.	Pakistan's Foreign Policy, 1947-2005	Abdul Sattar,
2.	Democracy and Authoritarianism in South Asia	Ayesha Jalal
3.	Military, Civil Society and Democratization in Pakistan	Akbar Zaidi
4.	The Reconstruction of Religious Thought in Islam	Allama Iqbal
5.	A history of Pakistan and its origins	Christophe Jaffrelot,
6.	Greek Political Thought: Plato & Aristotle	Eearnest Barker,
7.	Political Thought From Plato to Present	Ebenstein
8.	Political Thought in Medieval Islam	Erwin I.J. Rosenthal
9.	Constitutional Developments in Pakistan	G.W.Choudhury,
10.	Comparative Politics Today: A Theoretical Framework	Gabriel A. Almond, G.Bingham Powell,
11.	Contemporary Political Analysis	Garles Worth James,
12.	A History of Political Theory	George Holland Sabine
13.	Studies in Muslim Political Thought and Administration	H K Sherwani,
14.	Modern Islamic Political Thought	Hamid Enayat,
15.	Constitutional and Political History of Pakistan	Hamid Khan,
16.	Politics Among Nations: The Struggle for Power and Peace	Hans J. Morgenthau,
17.	Military and Politics in Pakistan	Hasan Askari Rizvi,
18.	Pakistan Foreign Policy: An Overview 1947-2004 (PILDAT)	Hasan Askari Rizvi
19.	Pakistan and Geostrategic Environment : A Study of Foreign Policy	Hasan Askari Rizvi
20.	International Politics: A Framework for Analysis	Holsti, K.J.
21.	Pakistan: A Modern History	Lan Talbot,

S. No.	Title	Author
22.	21st Century Political Science: A Reference	John T.Ishiyama, Marijke Breuning,
23.	Political Thought from Plato to Present	Judd Herman,
24.	The Political System of Pakistan,	K.B.Sayeed,
25.	Pakistan: A Political Study	Keith Callard,
26.	Pakistan: An Enigma of Political Development	Lawrance Ziring,
27.	Pakistan in the Twentieth Century	Lawrance Ziring,
28.	Pakistan: At the Crosscurrent of History	Lawrance Ziring,
29.	History of Muslim Philosophy	M M.Sharif,
30.	History of Local Government in Pakistan	Masudul Hasan
31.	Nationalism: The Nation-State and Nationalism	Monserat Guibernau,
32.	Politics and the State in Pakistan	Muhammad Waseem,
33.	Government and Politics in Pakistan	Mushtaq Ahmad
34.	Making of Pakistan	Noor ul Haq
35.	Pattern of Government	Samuel H. Beer &
36.	Political Thinkers: From Socrates to the Present	Paul Kelly (Ed)
37.	Introduction to Political Science, Islamabad,	Rodee Anderson etc.
38.	Pakistan's Foreign Policy : An Historical Analysis	S.M. Burke
39.	State & Society in Pakistan	Shahid Javed Burki
40.	Islami Riyasat	Syed Abul Aala Maudoodi
41.	Khilafat O Malookeyat	Syed Abul Aala Maudoodi
42.	Ethno National Movements of Pakistan	Tahir Amin
43.	Politics, Parties and Pressure Groups	V.O. Key Jr.
44.	Democratization in Pakistan	Waseem, M.
45.	Contemporary Political Philosophy: An Introductio	Will Kymlicka
46.	History of Political Theories (Three Volumes)	Willaim A. Dunning,
47.	International Relations: Politics and Economy in the 21 ST Century.	William Nester

PAPER: PSYCHOLOGY (100 MARKS)

- I. **Nature and Scope of Psychology:** Definition and scope, Psychology as a Science, Schools, Perspectives, and Models of Psychology, Recent Trends
- II. **Biological Basis of Behaviour:** Nervous System, Neuron and its function, Central and Peripheral Nervous System, Endocrine System
- III. **Sensation and Perception:** Sensory process through sense organs, Perception, Gestalt Principles, Binocular and Monocular cues, Illusions and Extra Sensory Perception, Determinants of Perception
- IV. **Learning and Memory:** Nature and Forms of Learning, Types of learning: Classical and Operant Conditioning, Reinforcement, Extinction, Discrimination, Punishment, Observational Learning, Theories of Learning, Types of Memory, Process of Memory, Forgetting, Theories of Memory
- V. **Motivation and Emotion:** Homeostasis, Factors affecting Motivation, Biogenic and Social Motives, Measurement of Human Motivation, Theories of Motivation, Emotions, Types of Emotions, Physiological changes and Emotion, Theories of Emotion.
- VI. **Psychological Assessment:** Attributes of Psychological Measures, Validity, Reliability, Item Analysis, Norms, Modern Test Theory, Selection and Training, Educational and Clinical Assessment, Ethical Standards and Legal Issues
- VII. **Personality:** Determinants of Personality, Factors in Development of Personality, Theoretical Perspectives, Traits and Types, Personality Assessment and Techniques, Cross-Cultural Issues.
- VIII. **Intelligence:** Theories of Intelligence, Types of intelligence (IQ, EQ), Assessing Intelligence
- IX. **Social Influence and Group Dynamics:** Social Facilitation, Attribution, Conformity, Obedience, Altruism, Attitudes, Social Norms.
- X. **Developmental Psychology:** Physical, Cognitive, Social and Emotional development in Childhood, Adolescence, Adulthood and Old Age
- XI. **Abnormal and Clinical Psychology:** Concept and causes of Abnormality, Clinical Assessment and Intervention, Different disorders such as Schizophrenia, Mood disorder, Anxiety disorder, Personality disorder, etc. Psychological treatment including different Therapeutic techniques.
- XII. **Organizational/Industrial Psychology:** Leadership styles, Decision making, Work motivation, Organizational Culture, Stress and Conflict at Work and its Management, Organizational Socialization, Job related Attitude, Sexual Harassment, Glass Ceiling, Human Computer interaction.

- XIII. **Health Psychology:** Beliefs and Behaviour, Models of Health Psychology, Assessment and Intervention, Models of Stress, Chronic and Terminal Illness, Role of Social Support.
- XIV. **Forensic Psychology:** Psychology and Law, Investigation, Confession, Eyewitness Testimony, Working with Offenders, Juvenile Delinquents, Drug Addicts, Sex Offenders etc.

SUGGESTED READINGS

S.No.	Title	Author
1.	Applied Industrial/Organizational Psychology	Aamodt, M.
2.	Introduction to Psychology	Atkinson R. C., & Smith, E. E
3.	Social Psychology	Baron, R. A
4.	Introduction to Forensic Psychology	Bartol, C. R
5.	Foundation of Physiological Psychology	Carlson, N. R.
6.	Introduction to Psychology: Gateways to Mind and Behavior	Coon, D., & Mitterer, J.
7.	Development Across the Life Span	Feldman, R.
8.	Introduction to Psychology	Fernald, L. D., & Fernald, P.S
9.	Introduction to Psychology	Atkinson & Hilgard's, Fredrickson, B
10.	Forensic Psychology	Fulero, S. M., & Wrightsman
11.	Foundation of Psychology	Hayes, N
12.	Introduction to Psychology	Kalat, J. W
13.	Abnormal Psychology	Kring, A. M
14.	Psychology	Myers, D. G.
15.	Psychology: Concepts and Connections	Rathus, S.
16.	Life Span Development	Santrock, J. W.
17.	Organizational Psychology	Singh, P.

PAPER: PUBLIC ADMINISTRATION (100 MARKS)

I. Public Administration: Concepts, Approaches and Context

Definitions; Role and Scope of Public Administration in Society; Issues in Public Administration Theory and Practice – Democracy versus Bureaucracy, Politics versus Administration, Efficiency versus Equity; Core Values of Public Administration – Rule of Law, Efficiency, Equity and Fairness, Responsiveness; Traditional Public Administration; New Public Management; New Public Service; Governance Approach to Public Administration; Islamic Concept of Public Administration; Historical roots of Public administration in Pakistan.

II. Public Administration: Classical and Contemporary Theories and Concepts

Bureaucracy; Scientific Management; The Human Relations; Leadership, Motivation, Network; Governance; Strategic Management; Public Choice; Administrative Culture; Types of Organizational Structure; Organization of Federal, Provincial, and Local Government in Pakistan; Administrative Culture of Pakistan; Inter-governmental Relations at Federal and Provincial level in Pakistan.

III. Public Policy Planning, Implementation and Evaluation

Strategic Planning and Management; Planning Process; Policy Analysis; Policy Implementation; Program Evaluation; Planning Machinery; Role of Donors and International Institutions in Public Policy and Management; Policy making and implementation of Federal Government of Pakistan.

IV. Budgeting and Financial Management

The Budget as a Policy Tool; The Budget as a Managerial Tool; Principles of Budgeting, Auditing and Accounting in Government; The Line-Item Budget; The Performance Budget; Program Budgeting; Zero-Base Budgeting; Outcome-Based Budgeting. Planning and Budgeting in Pakistan.

V. Managing Human Resources

Spoil versus Merit System in Public Employment; Personnel versus Human Resources Management; Close versus Open System of Public Employment; Functions of Human Resources Management; Challenges of Adopting HRM in Public Sector.

VI. Administrative Law

Meaning, Scope and Significance; Nature and Contents of Administrative Law, Administrative Ethics, Delegation of authority and Legislation, Administrative Tribunals; Administrative Law- Pakistan.

VII. Public Management Skills

Communication; Decision Making, Conflict Management; Leading, Administrative Buffering; Managing Change; Managing Diversity; Stress Management;

Delegation; Public Service Motivation; Creativity and Problem Solving; Issues of Public Management.

VIII. The Civil Service of Pakistan

Historical Background of Civil Service; The Structure of civil Service; History of Civil Service Reform; Management of Civil Service; Institutional and Cultural Context of Civil Service; Role of Civil Service in Good Governance, Gender and Civil Service.

IX. Organization of Provincial and Local Government

Governance Structure of Provincial Administration; Organization of Provincial Secretariat; Organization and Functions of Provincial Authorities and Agencies and their Relationship with Government Departments; Post-devolution Local Governance; Organization and Functions of District Government and Administration; Organization and Structure of City District Government; Issues and Challenges of Local Governance.

X. Governance and Administrative Reforms

Theories of Administrative Reforms; Types of Administrative Reforms, Privatization, Regulation, De-regulation, Decentralization, Business Re-engineering, Quality Assurance; Administrative Reform in Pakistan.

XI. Public Administration: Accountability & Control

Bureaucratic Responsiveness; Representative Bureaucracy; Citizens Engagement in Public Service; Accountability & Control, The Concept and Approaches to Public Accountability of Public Service; Institutional Framework for Administrative Accountability; Legislative, Executive and Judicial Control over Administration, Administrative Corruption; Role of Civil Society in Good Governance, Media, Interest Groups, Civil Society Organizations; The Situation in Pakistan.

XII. Public Administration and Development

Role of Public Administration in Development; Concept of Development Administration; Difference Between Development Administration and Development Management; Changing Role of Public Administration in Development, Issues and Challenges in Public Administration- The Pakistan Situation.

SUGGESTED READINGS

S.No	Title	Author
1.	Public Administration	Denhardt, R
2.	Public Administration – Understanding Management, Politics and Law in the Public Sector	David H. Rosenbloom
3.	Public Administration	Caiden, Gerald. E,
4.	Public Administration for the Twenty-First Century	Cooper et al,
5.	Organization Theory for Public Administration	Harmon, Michael M. & Mayer. Richard T
6.	Public Administration and Public Affairs	Nicholas Henry,
7.	Classics of Public Administration	Shafritz, J. and Hyde,
8.	Public Administration Dictionary	Candler, R. & Plano, J
9.	Reinventing Government	Osbourne, D. and Gaebler, I.
10.	Bureaucracy, Basic Books	Wilson, J. Q.,
11.	Evolution of Pakistan's Administration System	Braibanti, Ralph
12.	Human Development in South Asia: The Crises of Governance	Khadija Mahbub-ul-Haque
13.	Bureaucracy in Pakistan	Kennedy, Charles H.,
14.	Public Administration and Law	Beckett, Julia & Koenig Heidi O.
15.	Public Administration: A Comparative Perspective	Heady, Ferrel
16.	Public Administration and Public Management: The Principle Agent Perspective	Lane, Jan-Erik
17.	Governance: South Asian Perspective	Hasnat Abdul Hye
18.	Governance, Economic Policy and Reform in Pakistan	Abdus Samad
19.	Government and Administration in Pakistan	Jameelur Rehman Khan
20.	Public Administration: with special reference to Pakistan	Sultan Khan
21.	Public Administration in India	Hoshier Singh
22.	Public Administration in Asia Vol. I & II	Kalyanaraman Srinivasan
23.	Organizational Theory and the Public Sector	Christensen, T., Laegreid, P.,

PAPER: PURE MATHEMATICS (100 MARKS)

Section-A (40- marks)

I. Modern Algebra

- Group, 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.
- Ring, 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.

Section-B (40- marks)

II. Calculus & Analytic Geometry

- 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. Jacobnians, 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.
- 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.

Section-C (20-marks)

III. Complex Variables

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.

SUGGESTED READINGS

S.No.	Title	Author
1.	Advanced Calculus	Kaplan, W.
2.	Analytic Function Theory Vol.1	Hille, E.
3.	Calculus	Anton H., Biven I and Davis, S.

S.No.	Title	Author
4.	Complex Analysis	Goodstein G.R.G.
5.	Complex Variables	Murray R. Spiegel
6.	Calculus with Analytic Geometry	Yusuf, S.M.
7.	Calculus and Analytic Geometry	Zia ul Haq
8.	Elements of Complex Analysis	Pennisi, L.L.
9.	Theory of Groups	Majeed, A.
10.	Mathematical Methods	Yusuf, S.M.
11.	Mathematical Techniques	Karamat H.Dar
12.	Mathematical Analysis	Apostal, T.M.
13.	The Theory of Groups	Macdonald, I.N.
14.	Topics in Algebra	Herstein, I.N.

1. سنڌي ٻوليءَ جي قدامت

- 1 سنڌي ٻوليءَ بابت عالمن جا نظريا
- 2 ٻوليءَ جي تاريخ
- 3 سنڌي ٻوليءَ جا لهجا

2. سنڌي لوڪ ادب

- 1 لوڪ گيت (سهر و هو، جمالو، لولي، مورو، وغيره)
- 2 لوڪ ڪھاڻيون
- 3 ڏور
- 4 گجھارتون
- 5 ٻرولي
- 6 سينگار
- 7 هنر
- 8 ڏھس

3. سنڌي ادب جا مختلف دور

- 1 سومرا دور
- 2 سما دور
- 3 ارغون، ترخان ۽ مغل دور
- 4 ڪلهوڙا دور
- 5 ٺالپرن جو دور
- 6 انگريزن جو دور
- 7 موجوده دور

4. ڪلاسيڪل شاعر

- 1 قاضي قادن
- 2 شاه ڪريم
- 3 لطف الله قادري
- 4 ميمون شاه عنايت رضوي
- 5 شاه عبدالطيف ڀٽائي
- 6 خواجہ محمد زمان لنواري
- 7 بيدل
- 8 سچل سرمست
- 9 حمل فقير
- 10 خليفو نبي بخش
- 11 عبدالرحيم گرهوڙي
- 12 مصري شاه
- 13 صوفي صادق
- 14 سامي

5. جدید سنڌي شاعري جون صنفون

1. غزل
2. نظم
3. آزاد نظم
4. نثري نظم
5. گيت
6. تراويل
7. هائيڪو
8. ٽيڙو

6. قديم سنڌي شاعري جون صنفون

1. بيت
2. وائي
3. ڪافي
4. ٽيهه اڪري
5. هفتا
6. ڏينهن
7. راتيون

7. جدید دور جا سنڌي شاعر

1. عبدالڪريم گدائي.
2. حاجي احمد ملاح
3. ڪشچند بيوس
4. نارائڻ شيام
5. شيخ اياز.
6. مخدوم طالب الموليٰ
7. تنوير عباسي.
8. امداد حسيني.
9. استاد بخاري
10. تاج بلوچ
11. ج ج منگهائي
12. شمشير الحيدري
13. تاجل بيوس
14. حسن درس
15. سعيد ميمڻ
16. عبدالغفار تبسر

17. ادل سومرو
18. اياز گل
19. ڊاڪٽر مشتاق ڦل
20. احمد سولنگي
21. نصير سومرو
22. رخسانه پريت چند
23. ماهين هيسباڻي

8. سنڌي نثر نگار ۽ محقق.

1. ڪاڪو پيرومل
2. هوتچند مولچندگر بخشاڻي
3. ميران محمد شاه
4. مرزا قليچ بيگ
5. ڊاڪٽر عمر بن محمد دائود پوٽو
6. پير علي محمد راشدي
7. پير حسام الدين راشدي
8. جي ايم سيد
9. ڊاڪٽر نبي بخش خان بلوچ
10. ڊاڪٽر غلام علي الانا
11. محمد عثمان ڏيپلائي
12. ڊاڪٽر فتح محمد سيوهاڻي
13. ڊاڪٽر عطا محمد پنيرو
14. ڊاڪٽر نواز علي شوق
15. ڊاڪٽر فهميده حسين
16. ممتاز مهر
17. تاج جويو
18. اڪبر لغاري
19. ڊاڪٽر انور فگار هڪڙو
20. ڊاڪٽر ڪمال ڄامڙو
21. ڊاڪٽر محمد علي مانجهي

9. جديد نثري ادب

1. ناول
2. مضمون
3. مقابلا
4. افسانو
5. ڊرامو

.6 خاڪا

.7 سفر ناما

تياري لاءِ مددي ڪتاب

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مرزا قليچ بيگ	زينت	.1
محمد عثمان ڏيپلائي	سانگهڙ	.2
آغا سليم	هر اوست	.3
غلام نبي مغل	اوڙاه	.4
سراج ميمڻ	پڙڏاڏو سوئي سنڌ	.5
طارق عالم ابڙو	رهجي ويل منظر	.6
ڊاڪٽر غلام علي الانا	لاش	.7
علي بابا	موئن جو دڙو	.8
ماهتاب محبوب	خواب خوشبو ۽ چوڪري	.9
	افسانن جا ڪجهه مجموعا	.11
ڊاڪٽر اياز قادري	بلو داد	.1
جمال ابڙو	پشو پاشا	.2
غلام رباني آگرو	اب حيات	.3
امر جليل	دل جي دنيا	.4
شيخ اياز	سفيد وحشي	.5
نجر عباسي	پٿر تي ليڪو	.6
علي بابا	علي بابا جون ڪهاڻيون	.7
نسيم ڪرل	چونڀيون در	.8
علي احمد بروهي	ڪڪ پن	.9
عابده گانگهرو	تخليق جو انت	.10
انور ڪاڪا	ٺڙي ۾ اٽڪيل سج	.11
آغا سليم	چنڊ جا تمنائي	.12
ماهتاب محبوب	چاندي جون نارون	.13

.12 . ڊرامن جا ڪجهه اهر مجموعا

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مرزا قليچ بيگ	حسنا دلدار	3
مرزا قليچ بيگ	شهزادو بهرام	4
مرزا قليچ بيگ	انڪوائري آفيسر	5
محمد اسماعيل عرسائي	بد نصيب ٿري	6
شمشير الحيدري	ڪاڪ محل	7
ممتاز مرزا	آخري رات	8
قاضي خادم	لڙڪ لڙڪ زنجير	9
شيخ اياز	دودي سومر جو موت	10
قمر شهباز	واچوڙن ۾ لات	11

.13 . اهر سفرناما

قاضي عبدالمجيد عابد	يورپ جي ڊائري	1
سيد غلام مصطفي شاه	سير ۽ سفر	2
ڊاڪٽر عبدالجبار جوڻيجو	مائو جي ملڪ ۾	3
الطاف شيخ	منهنجو ساگر منهنجو ساحل	4
فقير محمد لاشاري	سگهارو هماليه هيٺا ماڻهو	5
شيخ عزيز	مون لينن جو ڏيهه ڏٺو	6
ڊاڪٽر فهميده حسن	هوائن جي آڌار	7
تنوير عباسي	ڏوري ڏوري ڏيهه	8
احمد علي رند	چار گهڙيون چين ۾	9
ماهتاب محبوب	سرهي سرهي سار	10
اسحاق انصاري	پرين هن پار	11

1. شاھ جو رسالو
 2. مقدم لطيفي
 3. شاھ لطيف جي شاعري ۾ جماليات
 4. پيغام لطيف
 5. شاھ لطيف جي شاعري
 6. سنڌي ٻوليءَ ۽ ادب جي تاريخ
 7. سنڌي ٻوليءَ جي تاريخ
 8. سنڌي ٻوليءَ جو بڻ بنياد
 9. سنڌي ادب جي تاريخ
 - جلد 1
 - جلد 2
 - جلد 3
 10. قاضي قادن جو ڪلام
 11. شاھ ڪريم جو ڪلام
 12. سچل جو ڪلام
 13. سنڌي شاعريءَ جون صنفون
 14. سنڌي ادب جو فڪري پس منظر
 15. چارمقالا
 16. سنڌي لوڪ ادب جو تحقيقي جائزو
 17. سنڌي لوڪ ڪهاڻيون
 18. هپڪار (مضمونن جو ڪتاب)
 19. سنڌي نثري تاريخ
 20. چونڊ سنڌي افسانا
 21. سچل ساروسج
 22. ڪچهريءَ جو مور
 23. سنڌي ادب جو مختصر جائزو
 24. جديد سنڌي ادب جو تجزيو
- غلام محمد شاهواڻي
 ڊاڪٽر گر بخشاڻي
 ڊاڪٽر شير مهراڻي
 جي ابر سيد
 تنوير عباسي
 ڊاڪٽر نبي بخش بلوچ
 پيرومل مهرچند آڏواڻي
 ڊاڪٽر غلام علي الانا
 ڊاڪٽر عبدالجبار جوڻيجو
- پبلشر سنڌي لئنگويئيج اٿارٽي حيدرآباد
- هيرو لڪر
 ڊاڪٽر دائود پوٽو
 عثمان انصاري
 ظفر عباسي
 ڊاڪٽر غفور ميمڻ
 محمد اسماعيل عرساڻي
 عبدالڪريم سنديلو
 ڊاڪٽر نبي بخش بلوچ
 ڊاڪٽر نواز علي شوق
 منگهارام ملڪاڻي
 ڊاڪٽر غلام علي الانا
 مرتب ڊاڪٽر نواز علي شوق
 ڊاڪٽر ڪمال ڄامڙو
 اڪبر لغاري
 تاج بلوچ

PAPER:

SOCIOLOGY

(100 MARKS)

I. General Sociology

1. **Individual:** Sociability or the sociality of man.
2. **Culture:** Meaning and Characteristics (Culture is variable, learnt, social, shared, Transmissive, dynamic and adaptive), types (Material, Non-material), functions (transfer of knowledge, define situation, provide Behaviour pattern, moulds personality) and elements of culture (norms, values, beliefs, sanctions, customs). Culture and Socialization; formal and non-formal socialization, transmission of culture, cultural relativism. Sub-cultures. Ethnocentrism and xenocentrism, Cultural lag, High culture and popular culture. Multiculturalism, assimilation, and acculturation.
3. **Society:** Meaning and characteristics. Community; meaning and characteristics. Individual and society. Relationship between individual and society. Two main theories regarding the relationship of man and society (i) the social contact theory and (ii) the organismic theory. Social and cultural evolution of society (Hunting and Gathering Society, Herding and Advance Herding Society, Horticultural Society, Agrarian Society, Industrial Society, Post modern Society).
4. **Social Interaction:** Caste and classes, Forms of social classes, Feudal system in Pakistan, Social Mobility-nature of social mobility and its determinants in Pakistani society, Culture of poverty.
5. **Social Control:** Mechanisms of social control-formal and informal means of social control, Anomie, Alienation and social Integration-Means of social integration in Pakistani Society.
6. **Social and Cultural Change and Social Policy:** Processes of Social and Cultural Change-discovery, inhibitions to social and cultural change in Pakistan Social planning and directed social and cultural change, effect of Industrialization, Urbanization, Modernization and Modern Means of Communication on Social Change.
7. **Public Opinion:** Formation of Public, Opinion, Concept of opinion leader, characteristics of opinion leadership.
8. **Community:** The rural community, Traditional Characteristics of rural life, The urban community, Rural - Urban convergence, Urbanism, Future of cities in Pakistan.
9. **Social Institutions:** The nature and genesis of institutions, the process of institutionalization, Functions of Social Institutions: Family, Religion, Education, Economy and Politics.
10. **Social Problems in Pakistan:** High population growth rate, Rural -urban migration. Issues of technical/vocational training, Deviance and street crime, Unemployment, illiteracy and School drop out, Smuggling, Prostitution, Poverty,

Drug Addiction, Child Labour and Abuse Bonded Labour, Social Customs and Traditions effecting Women in Pakistan, Violence Against Women's and Domestic Violence, Issues concerning the Elderly's in Pakistan.

11. Sociological Theory:

Three sociological perspectives: Structural Functionalism, Symbolic interactions and Conflict. Theorists: Ibn-i-Khaldun Spencer, August Comte, Emile Dukheim, Max Weber, Kari Marx, Parson.

12. Methods of Sociological Research:

Scientific Method, Steps in research, Types of Questionnaire Research Design, Surveys, Observation and Case Studies.

SUGGESTED READINGS

S.No.	Title	Author
1.	Sociology : Adown to earth approach	James M. Henslin
2.	Method of Social Research	Baily
3.	Poverty Curtains	Dr. Mehboob-ul-haq
4.	Contemporary Sociological Theories	Pitrim Sorokin
5.	Master of Sociological Thought	Lewis A. Coser
6.	Socilogy	Ogbum & Nimkoff
7.	Social Change and History	Robert Nisbet
8.	Feudal System in Pakistan	Nawab Haider Naqvi
9.	The Sociology of Rural Life	Lynn Smith, T.
10.	Sociology-Social Structure and Social Conflict	Kerbo, Harold R. (1989).
11.	Sociology: An Introduction to the Science of Society	Koening Samuel
12.	Marriage and The Family	Lee, Alfred Mclung and Lee, Elizabeth Briant (1961).
13.	The Design of Social Research,	Ackoff, Russel, L. (Latest ed.)
14.	An Introduction to the History of Sociology	Barnes, H.E. (Ed.) (1966)
15.	Pakistani Society	Akbar Ahmad, S.
16.	Contemporary Sociological Theories	Pitrim Sorokin
17.	Sociology, 10th edition	John, J. Macionis. 2004.
18.	Research Methodology	Neuman, Lawrance (Rvs. Ed.)
19.	Sociological Theory	Ritzer, Georg, (1988).

PAPER: STATISTICS (100 MARKS)

Part – I (50 marks)

I. Descriptive Statistics

Definition, Importance and scope of Statistics, Descriptive and Inferential Statistics, Presentation of the Data, Tables, Graphs and Charts: Stem-and leaf diagram, Box and Whisker Plots. Measures of Central Tendency/location, Measures of Dispersion/Variability: Measures of Skewness and Kurtosis.

II. Basic Probability

Basic Probability Concepts, Additive and Multiplicative laws of Probability, Joint and Marginal Probabilities, Conditional Probability and Statistical Independence, Bayes' rule. Concept of a Random Variable, Mathematical Expectations, Discrete and Continuous Random Variables, Probability Distribution, Mean and Variance of a discrete random variables.

III. Probability Distributions

Discrete and continuous Probability Distributions. Properties, applications of Binomial, Poisson, Hyper-geometric, Normal Distribution and its properties, Standard Normal Curve, Normal approximation to Binomial and Poisson distribution.

IV. Regression Analysis & Correlation Analysis

Concepts of Regression and Correlation and their application, Simple and Multiple Linear Regression (upto three variables), Estimation of the Parameters, Method of least square, Inference regarding regression parameters

Correlation, Correlation Coefficient, Properties of Correlation Coefficient, Inference regarding correlation coefficient, Partial Correlation and Multiple Correlation (upto three variables).

V. Non-Parametric Methods

Parametric versus nonparametric tests, when to use non-parametric procedures, One-sample tests: Sign test, Wilcoxon signed ranks tests, Kolmogrov-Smirnov test, run test.

Tests for two related samples: sign test, run tests, chi-square test, Test for two independent samples: Mann-Whitney test, Kolmogrov-Smirnov test.

Part – II (50 marks)

I. Sampling & Sampling Distributions

Population and Sample, Advantages of Sampling, Sampling Design, Probability & Non-Probability Sampling techniques. Brief Concepts of Simple Random, Stratified, Systematic, Cluster, Multiple and Multistage Sampling. Purposive, Quota Sampling, Convenience & Accidental Sampling.

Sampling with and without replacement, Application of Central Limit Theorem in Sampling, Sampling Distribution of Mean, difference between two Means, Proportion, difference between two Proportion and Variance.

II. Statistical Inferences

Estimation: Point Estimation, Properties of a good Estimator. Interval Estimation. Interval Estimation of Population mean. Large and small sample confidence intervals for Population Mean.

Hypothesis Testing: Types of errors. Hypothesis Testing for Population Mean. Inferences for Two Population Means. Inferences for the Mean of Two Normal Populations using Independent Samples (variances are assumed Equal). Inference for Two Populations Mean using Paired Samples. Inferences for Population Proportions. Confidence Intervals and hypothesis testing for Population Proportion. Inferences for Two Populations Proportions using Independent Samples, Estimation of sample size

Analysis of categorized data. Goodness of fit tests. Contingency tables. Test of independence in contingency tables.

III. Design of Experiments

One-way and Two-way Analysis of Variance, Design of Experiments, Concepts of Treatment, Replication, Blocking, Experimental Units and Experimental Error, Basic Principles of Design of Experiments, Description, Layout and Statistical Analysis of Completely Randomized Design (CRD), Randomized Complete Block Design (RCBD), Multiple Comparison tests (LSD test).

IV. Population Analysis & Vital Statistics

Population and Demographic Methods, Sources of Demographic data, Basic Demographic Measures, Sex Ratio, Child Women Ratio, Vital Index, Crude and Specific Birth and Death Rates, Total Fertility and Net Reproduction Rates.

Official Statistics: Statistical Systems in Pakistan, Functions of Statistics Division and Bureaus of Statistics: The National Income, Gross Domestic Product, Saving and Wealth, Index Numbers.

SUGGESTED READINGS

Sr. No.	Title	Author
1.	Principles and Procedures of Statistics	Steel, R and Torrie, J.H.
2.	Biostatistical Analysis	Zar, J.H.
3.	Probability and Statistics for Engineers and Scientist	Walpole, R.E., Myers, R.H. and Myers, S.L.
4.	Introduction to Statistical Theory, Part-I & II	Chaudhry, S.M. and Kamal, S.
5.	Introduction to Probability Theory and Statistical Inference, 3 rd Edition.	Larson, H.J.
6.	Design and Analysis of Experiments	Montgomery, D.C.
7.	Fundamentals of Modern Statistical Methods	Wilcox, R.
8.	Latest Statistical Methods	Vaidyanathan, M.
9.	Statistical Methods	Aggarwal, Y.P.
10.	Mathematical Statistics	Freund, John E.
11.	Demographic Methods	Andrew Hinde
12.	Publications of Federal Board of Statistics and Provincial Board of Statistics, Pakistan.	Govt. of Pakistan

PAPER: TOWN PLANNING & URBAN MANAGEMENT (100 MARKS)

- I. **Definition of Town Planning, Goals and objectives of Town Planning:** Town Planning as a multi-disciplinary approach and relationship of Town Planning with other professions.
- II. **Historical Perspective of Urban Planning:** Planning of historical towns in the world. Examples of planned towns in Europe, Nile Valley region, Euphrates and Tigris Valley region and Indus Valley region (Mohenjodaro, Harappa, Kot Diji and Mehr Garh) and Gandhara Civilization.
- III. **Urban Rural Differences and Hierarchy of Settlements:** Urbanization and its effects on the environment of urban areas.
- IV. **History of planning in Pakistan: 5 year plans.**
- V. **Managing Urbanization**
 - How to manage urbanization
 - Best Practices
 - Land use classification policy
 - Building and development control
 - Removal of encroachments
 - Introduction to Intelligent Transport Systems (ITS)
- VI. **Housing community and Economic Development:** To prepare professionals with the skills and knowledge of equitable development. Commitment to expanding opportunities and providing quality life for disadvantaged groups.
- VII. **Public Policy and Urban Design Management:** Solving social and environmental problems using:
 - a. Economics
 - b. Policy analysis
 - c. Political science
 - d. Urban Design
- VIII. **Sustainability, Environmental Policy and Planning:** How society conserves and manages its natural resources and works to promote development.
- IX. **Urban Information Systems:** Use of planning related software and spatial analysis tools and systems i.e GIS, SPSS etc.

SUGGESTED READINGS

S.No.	Title	Author
1.	Introducing Town Planning	Clara Greed
2.	Introduction to Town and Country Planning	John Ratcliff
3.	Town Planning for the Third World	A.K. Bhatti

S.No.	Title	Author
4	Contemporary Urban Planning	J.M. Levy
5	Land Use, Planning, and Zoning	Peter J. Loughlin,
6	Town and Country Planning in the UK	J.B. Cullingworth, Vincent Nadin
7	Town Planning in Practice	Raymond Unwin,
8	World Cities and Urban	Mike Janks
9	Urban Land Use Planning	Philip R. B.
10	Environmental Science: A Global Concern	William P
11	Megacity Management in the Asian and Pacific Region (Vol-2)	Stubbs, Jeffery Giles Clarke
12	Dying Cities: Surviving the Urban Jungle	Somaiya N
13	Handbook on Urban Sustainability	Springer
14	Emerald Cities – Urban sustainability and Economics	Joan Fitzgerald
15	Growing Greener Cities	Eugene Birch, Susan Wachter
16	The Earth scan Reader in Sustainability Cities	David Sattethwaite
17	The Poverty Curtain	Dr. Mehboob –ul-Haq
18	Reflections on Human Development	Dr. Mehboob –ul-Haq
19	Smart Cities	Anthony Townsend

PAPER:

URDU LITERATURE

(100 MARKS)

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۱۔ اردو ادب کا مطالعہ

- i۔ اردو زبان و ادب کی اسلامی شناخت
- ii۔ بیسویں صدی کی ادبی تحریکیں
- iii۔ پاکستانی ادب کی اصطلاح: تکنیکیں و روایت اور ارتقاء

۲۔ شہری ادب کا تنقیدی مطالعہ

15

الف۔ دور قدیم

- i۔ میر (غزل) - انتخاب میر مولوی عبدالحق
- ii۔ غالب (دیوان غالب)
- iii۔ حالی (مسدس)
- iv۔ اقبال (طلوع اسلام، ہنجر راہ، مسجد قرطبہ)

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ب۔ دور جدید

- i۔ فیض (غزل - دست صبا)
- ii۔ راشد (نظم - ایران میں اجنبی)
- iii۔ مجید امجد (نظم - شب رفتہ)
- iv۔ صبر کاشانی (غزل - برگ نے)

۳۔ نثری ادب کا تنقیدی مطالعہ

10

الف۔ غیر افسانوی نثر

- i۔ شبلی (سیرت النبی ﷺ، جلد اول)
- ii۔ مولوی عبدالحق (ٹاٹا کے چند ہم عصر)

15

ب۔ افسانوی نثر

- i۔ منٹو (افسانے، منٹو کے بیس افسانے، مرتب ڈاکٹر انوار احمد، ڈاکٹر اے بی اشرف)
- ii۔ احمد مدیم قاسمی (افسانے، کپاس کے پھول)
- iii۔ مشتاق احمد یوسفی (ظفر و مزاج، آب گم)

10

۳۔ تلخیص

15

۵۔ مضمون

نموزہ کتب برائے مطالعہ

ڈاکٹر وزیر آغا	۱۔ تنقید اور جدید اردو تنقید
ڈاکٹر انور سدید	۲۔ اردو ادب کی تحریکیں
شیخ محمد اکرام	۳۔ آب کوز
شیخ محمد اکرام	۳۔ روز کوڑ
شیخ محمد اکرام	۵۔ موج کوڑ
ڈاکٹر روبینہ شہناز	۶۔ اردو تنقید میں پاکستانی تصورات
مرتبین: ڈاکٹر رفیع الدین باغی	۷۔ تقابلیات کے سو سال
ڈاکٹر سمیل عمر، ڈاکٹر وحید عشرت	۸۔ تاریخ ادبیات مسلمانان پاکستان و ہند
ترتیب نو: ڈاکٹر فوجیہ محمد زکریا	۹۔ اردو ادب کے پچاس سال
مرتب: ڈاکٹر نواز شعی	

PAPER:

ZOOLOGY

(100 MARKS)

I. Animal Diversity-Invertebrates

- Architectural pattern of an animal, Taxonomy and phylogeny, Major subdivisions of animal kingdom.
- Animal-Like Protists: The Protozoa: evolutionary perspective, locomotion and reproduction, Protozoa of veterinary and medical importance.
- Porifera: Body wall, skeleton and water currents system. Coelenterates: Reproduction plan and alteration of generation (Polymorphism), Coral reefs.
- Platyhelminthes and Nematodes: Parasitic adaptations and medical importance. Annelids: Metamerism and ecological importance.
- Molluscs: Modification of foot, Feeding and their role in the shell fishery.
- Arthropods: Modification in their mouth parts, Role of arthropods as vectors in the transmission in microbial infection. Arthropods and their ecological importance.
- Echinoderms: Characteristics, Evolutionary perspective, Relationships to other animals; echinoderm characteristics.

II. Animal Diversity-Chordata

- Hemichordates and Invertebrate Chordates: Evolutionary Perspective: Phylogenetic Relationships and considerations.
- Fishes: Structural and functional adaptations of fishes.
- Amphibian: Movement onto land and early evolution of terrestrial vertebrates.
- Reptiles: Characteristics of reptiles, adaptations in reptilians.
- Birds: Migration and navigation, adaptations.
- Mammal: Structural and functional adaptations of mammals.

III. Principles of Animal Life

- The chemical basis of animal life: Brief introduction to bio-molecules; carbohydrates, lipids, proteins and nucleic acids.
- Cell concept and cell theory, Organization of cellular organelle (their structure and functions), Central dogma of cell biology (Transcription and Translation), Meiosis and Mitosis
- Protozoa: Reproduction pattern on in protozoan, Parasitism in protozoan
- Mesozoa and Parazoa: Porifera: Cells types, body wall and skeleton and water currents system, Coelenterata: Reproduction plan and alteration of generation (Polymorphism)
- Tissues Types: epithelial, connective, muscle and nervous tissue; organs and organ systems.
- Enzymes function and factors affecting their activity, cofactors and coenzymes. Energy Harvesting: Aerobic and anaerobic respiration the major source of ATP.

- Mendel's law of inheritance, Chromosomal basis of inheritance, Multiple alleles, Eukaryotic chromosomes: Mutations and chromosomal aberrations.
- Ecological Concepts: Interactions, Concepts and components of ecosystem, Food chain, Food web, Biogeochemical cycles, Forest, Biomes, Wildlife conservation and management, Environmental pollution, Green house effect, Acid rain, Global warming.
- Evolution: Darwinian evolutionary theory based on natural selection and the evidence, Microevolution: Genetic variation and change within species, Macroevolution: Species and speciation (Allopatric, Parapatric and Sympatric speciation)

IV. Animal Form and Function

- Protection, Support and Movement: Integumentary system of invertebrates and vertebrates; Animal muscles: the muscular system of invertebrates and vertebrates.
- Digestion and Nutrition: Feeding mechanism, Digestion, Organization and regional function of alimentary canals, Regulation of food intake, Nutritional requirements
- Internal Fluids and Respiration: Internal fluid environment, Composition of blood, Circulation and respiration mechanisms
- Homeostasis: Excretion, Vertebrate kidney mechanisms, Temperature regulation
- Nervous Coordination: Nervous system and Sense: Functional units of nervous systems, Synapses junctions between nerves.
- Chemical Coordination: Endocrine System; Vertebrate endocrine glands and types of hormones, Mechanism of hormones action,
- Animal behavior: Learning, Habituation, Insight learning, latent learning, classical learning: Control of Behavior; social behavior

SUGGESTED READINGS

S.No	Title	Author
1.	Integrated Principles of Zoology.	Hickman, Jr. C.P., Keen, S. L., Larson, and Eisenhour, D.J.
2.	Zoology	Miller, S. A. and Harley, J. B.
3.	Biology	Campbell, N.A.
4.	Evolution. 2nd Edition	Douglas Futuyma
5.	Animal behavior: An Evolutionary Approach., (9 th Edition)	John Alcock