

# FEDERAL PUBLIC SERVICE COMMISSION

## RULES FOR COMPETITIVE EXAMINATION (CSS), 2008

Islamabad, the 23rd November, 2007

*“In pursuance of Section 7-A read with section 10 of the FPSC Ordinance, 1977, Chairman FPSC with the approval of the Federal Government has made, in supersession of Competitive Examination Rules, 2007, the following rules for regulating the conduct of the Competitive Examination, 2008”*

**No. F. 2/1/2008-CSS-I.**—The Competitive Examination, 2008 will be held by the Federal Public Service Commission, **with effect from 15th March, 2008** for recruitment to posts in BS-17 for the following Groups/Services under the Federal Government :—

- (1) Commerce & Trade Group
- (2) Customs & Excise Group
- (3) District Management Group
- (4) Foreign Service of Pakistan
- (5) Income Tax Group
- (6) Information Group
- (7) Pakistan Audit & Accounts Service
- (8) Police Service of Pakistan
- (9) Postal Group
- (10) Railways (Commercial & Transportation) Group
- (11) Military Lands & Cantonment Group

### Places of the Examination:

(i) The examination will be held simultaneously at Islamabad, Rawalpindi, Lahore, Karachi, Peshawar, Quetta, Multan, Faisalabad, Gujranwala, Sargodha, Hyderabad, Sukkur, Abbottabad, D.I. Khan, Muzaffarabad, Gilgit & Skardu, depending on the number of applicants for each centre.

(ii) The Commission reserves the right to finally decide the place where the candidates would be examined or interviewed.

(iii) The Competitive Examination comprises the following :—

- (a) Written Examination,
- (b) Medical Test,
- (c) Psychological Test; and
- (d) *Viva Voce*.

### RULES FOR ADMISSION TO THE EXAMINATION

3. The examination will be conducted by the Federal Public Service Commission in accordance with the following Rules, subject to such changes as may be decided by the Government before finalising appointments on the basis of this examination.

#### QUALIFICATIONS AGE-LIMITS

4. (i) A candidate for admission to the examination must have attained the age of 21 years and must not have attained the age of 28 years on **1st January, 2008** (candidates born earlier than 2nd January, 1980 and later than 1st January, 1987 will not be eligible).

#### Age Relaxation

(ii) **The upper age limit will be relaxed by two years up to the age of 30 years in respect of :—**

- (a) the candidates belonging to the Scheduled Caste and Buddhist Community subject to production of a certificate (Annex-A of Application Form) to be issued by Political Agent/DCO/ District Magistrate in support of their claim.

(b) the candidates belonging to the recognized Tribes who are permanent residents of the areas mentioned-below and whose families have been living in these areas. Such candidates must attach a certificate (Annex-B of Application Form) to be issued by Political Agent/DCO/District Magistrate in support of their claim :—

1. Balochistan.
2. Tribal Areas of D.I. Khan and Peshawar Divisions (including former Frontier States of Dir, Swat, Chitral and Amb).
3. Former excluded (Baluch) area forming part of the Dera Ghazi Khan and Rajanpur Districts.
4. Former Tribal Areas of Mardan and Hazara Divisions.
5. Upper Tanawal Area of Hazara Division.

(c) the candidates who are permanent residents of Azad Kashmir Territory, subject to submission of a certificate (Annex-C of Application Form) to be issued by Kashmir Affairs Division, Government of Pakistan.

(d) the candidates who are permanent residents of Northern Areas including Gilgit, Diamir, Baltistan, Ghizar and Ghanche, subject to submission of a certificate (Annex-B of Application Form) to be issued by the Political Agent/DCO/ District Magistrate.

(e) the candidates who are disabled namely, physically impaired, hearing/speech impaired (deaf & dumb) and visually impaired (blind), subject to submission of certificate of disability issued by the competent authority designated for the purpose by the Federal/Provincial Government.

(iii) In the case of in Service Government Servants, Contract employees, including the Government servants of AJ&K, who possess a minimum of two years continuous Government service as on first January, 2008, the upper age limit is relaxable by two years up to the age of 30 years, subject to submission of Departmental Permission Certificate from the competent authority. Employees of Nationalised Banks, State Bank of Pakistan, WAPDA, Regulatory Authorities, Autonomous bodies and other semi autonomous bodies are not entitled to age relaxation.

#### Date of Birth

(iv) **The date of birth accepted by the Commission is that entered in the following documents :**

- (a) Matriculation Certificate ;
- (b) Secondary or Higher Secondary School Leaving Certificate;
- (c) Certificate of birth from the Principal/Headmaster of the School from where a candidate has passed his/her GEC, 'O' level or equivalent examination, showing the date of birth in the School Admission Register ;
- (d) In case of Christian candidates, Baptismal or birth registration certificate.

(v) *The decision as to which certificate is acceptable for the purpose of date of birth rests with the Commission.*

(vi) **Once a date of birth has been claimed and accepted by the Commission for the purpose of admission to an examination, no change will be allowed at a subsequent examination or selection.**

(vii) *The applications of Government Servants will also be governed by the Government Servants (Application for Services and Posts) Rules, 1966 except that the chances will be allowed irrespective of the provisions of the Government Servants (Application for Services and Posts) Rules, 1966.*

(viii) The relaxation in age limits prescribed in paragraph 4 (ii) and (iii) above shall be permitted up to the maximum period of an individual concession and not by the total period of the concessions taken together, if admissible in any case.

### EDUCATION

5. (i) A candidate must hold at least a Second Class or Grade "C" Bachelor's degree in any faculty of one of the Pakistani Universities or an equivalent degree or comparable educational qualifications of a foreign University recognized by Higher Education Commission, Islamabad.

(ii) *A candidate who has obtained a Third Division (or 'D' grade) in his/her Bachelor's Degree will be eligible for the Examination in cases where he/she has obtained a higher Division in Master's Degree.*

(iii) The decision as to which foreign degrees or comparable educational qualifications are equivalent to corresponding Pakistani degree rests solely with the Commission.

### NATIONALITY

6. (i) The candidate for the examination must be a citizen of Pakistan or a person deriving his/her nationality from the State of Jammu and Kashmir.

(ii) A Woman candidate who is otherwise eligible can also compete in the examination.

**(iii) (a) Seats earmarked for prescribed provincial/regional quotas shall be allocated to candidates on the basis of the domicile certificate issued by the competent authority in accordance with the law and the rules.**

(b) A candidate who has acquired the citizenship of Pakistan by registration under the Pakistan Citizenship Act and the Rules made thereunder should attach to the application the certificate (attested copy thereof) of citizen-ship. A candidate who has not been registered as a citizen of Pakistan but claims that he/she should be deemed to be citizen of Pakistan under the Pakistan Citizenship Act should submit proof to the effect that he/ she fulfills the conditions on the basis of which he/she claims to be deemed as a citizen of Pakistan. A candidate who derives his/her nationality from the State of Jammu and Kashmir should attach to the application a certificate issued by the Kashmir Affairs Division in support of his/her claim.

(c) Only those candidates shall be considered for vacancies reserved for Azad Jammu and Kashmir whose application forms for the Competitive Examination are accompanied by the domicile certificate alongwith Permanent Residence Certificate, issued by the Kashmir Affairs Division, of that territory. No such certificates shall be accepted at any later stage.

(d) The domicile once claimed and accepted by the Commission for the purpose of admission to an examination, no change will be allowed at a subsequent examination or selection.

(e) The domicile claimed by a candidate and accepted by the Government at the time of entry into Government service shall be treated as final throughout his/her service career and no subsequent change in his/ her domicile will be recognised for the purpose of terms and conditions of his/her service including his/her allocation and liability to transfer.

### Cut Off Date

(f) The cut off date for determining the eligibility of the candidate in terms of age, qualifications, domicile, etc., is **1st January, 2008.**

(iv) A candidate who has married a person who is not a citizen of Pakistan shall not be eligible for appointment provided that a person who marries an Indian national with the prior permission of Government may be regarded as eligible for appointment.

(v) A candidate having dual nationality must surrender his/her Foreign nationality and inform the Government before joining Civil Services Academy.

### GENERAL

7. (i) A candidate must satisfy the Federal Public Service Commission that he/she is suitable in all respects for employment under the Government.

(ii) No candidate will be admitted to the examination who does not hold a certificate of admission from the Commission.

(iii) The decision of the Commission as to the eligibility or otherwise of a candidate for admission to the examination shall be final.

(iv) Candidates are cautioned that if an application which is not signed and or is received incomplete or wrongly filled in and is not accompanied with any of the documents mentioned in para 11 of the Instructions to Candidates it will be rejected.

(v) **Caution:**—A candidate who knowingly furnishes any particulars which are false, or suppresses material information, or attempts to influence the Commission, or officers or members of the staff of the Commission, or tries to obtain support for his/her candidature by improper means, or deliberately submits forged certificates, or tampers with the entries in his/her age, educational and other certificates, or misbehaves in the examination hall or uses unfair means/copying, or is found guilty of misconduct during examination/medical, Viva Voce Tests and uses filthy and unethical language in the Answer Book(s) during written examination, may be disqualified for this and/or subsequent examinations/selections held by the Commission or criminally prosecuted and debarred from employment under Government.

(vi) A candidate who, even after his appointment, is found to have knowingly furnished any particulars which are false, or to have suppressed material information will be liable to dismissal from Service.

(vii) Certificates of age and educational qualifications in which any entry is overwritten, altered, erased, mutilated or tampered with in any way or the genuineness of which is otherwise doubted will be liable to be impounded till such time as the Commission considers it necessary.

(viii) **Answer Books** in all the subjects of examination are secret documents and cannot, therefore, be permitted to be seen by the candidates or their representatives nor re-examination of answer books/scripts is allowed under any circumstances. A candidate desirous of getting of his/her marks, awarded by the examiners re-counted may submit his/her request for the purpose, within one month from the date of issue of result card/marks sheet *alongwith a Treasury Challan of Rs. 200/- per paper as fee for re-counting of marks only.* Thereafter, no such request will be entertained.

(ix) The Answer books of the Candidates will be retained in the office of the Federal Public Service Commission for one year only and thereafter the same will be destroyed. Candidates are, therefore, cautioned that any query relating to their Answer books should be made within the specified period, thereafter, no request in this regard will be entertained.

(x) The candidates are cautioned that wrong selection of subjects will lead to rejection under para 7 (iv). Change of optional subjects is not allowed.

**(xi) Grace marks are not allowed.**

#### SUBMISSION OF APPLICATION

8. (i) A candidate seeking admission to the examination must apply to the Federal Public Service Commission, Islamabad on the prescribed form of application and the same must reach the Commission on or before the closing date. No extra time is allowed for postal transit, etc.

(ii) Government servants who fulfill the conditions laid down in these rules are eligible for admission to the examination if permitted by the competent authority in their departments or offices. However, an advance copy of the Application may be submitted before the closing date to avoid rejection. Candidates who join Government service after submitting their applications for admission to the examination should also submit the Departmental permission immediately thereafter.

(iii) **Armed Forces candidates** to route their applications through proper channel of their Services. Applications not routed through proper channel will be rejected. Similarly the released/retired personnel should produce a clearance certificate from Military Secretary Branch for employment in civil services of Pakistan. However, an advance copy of the Application may be submitted before the closing date to avoid rejection.

(iv) A candidate who after submitting such Departmental permission, joins Civil Service Academy or is transferred to another Department, should also obtain the permission of that Department and submit the same to the Commission as soon as possible.

(v) **A candidate who has left Government service** should submit with his/her application the original as well as a copy of his/her discharge/service certificate. A candidate who has been dismissed from Government or semi Government Service will not be eligible for admission to the examination.

(vi) **Number of Attempts:**—A candidate may avail three chances of the examination if he/she is otherwise eligible.

*Explanation:—*

(i) A candidate shall be deemed to have attempted at the examination if he/she actually appears in any one or more papers and even if he/she tendered blank Answer Book/Sheet.

(ii) A candidate who has received and read the Question Paper will not be allowed to leave his/her seat or exam hall without marking his/her attendance and until half the time is over.

(vii) If a candidate who took the Competitive Examination 2007 wishes to apply for admission to the 2008 he/she must submit an application by the prescribed date without waiting for the result of 2007. If subsequently it is not necessary for him/her to take the 2008 written examination his/her examination fee will not be refunded.

(viii) No plea that an application form or any document has been lost or delayed in the post will be entertained.

(ix) The maximum number of candidates to be admitted to this examination may, at the discretion of Government, be limited to such number as Government may decide. If a limit is imposed and the number of candidates exceeds that limit, the Commission shall select from amongst the applicants those who shall be admitted to the examination, and, in doing so, shall have regard to

the suitability of the applicants and to adequate representation of the Provinces/Areas of Pakistan as well as of the various age concessions.

#### SUBJECTS OF EXAMINATION

9. The subjects for the competitive examination will be as given in Appendix I.

#### FEES

10. (a) Candidates must pay Rs. 1000/- as Application fee as prescribed in Appendix-II, deposited in State Bank/National Bank of Pakistan, under the account head “**C-02101**-Organs of State Exam Fee” (FPSC Receipt)

(b) No claim for refund of any fee will be entertained nor can the fees paid be held in reserve for another examination or selection.

#### Qualifying Marks

11.(i) The Commission with prior approval of the Government may fix qualifying marks in any or all of the subjects of the examination but a candidate who fails to secure at least 40% marks in any compulsory subject, 33% marks in any of the optional subjects, 50% marks in the Aggregate and 100 marks at the Viva Voce Test, will be considered to have failed and will not be eligible for appointment.

(ii) Candidates qualifying the written examination will be called for Medical, Psychological Tests and *Viva Voce*.

12. From the marks assigned to candidates in each subject, such deductions will be made as the Commission may consider necessary in order to ensure that no credit is allowed for merely superficial knowledge “Candidates who obtain less than **40%** marks in any of the Compulsory subjects and **33%** marks in any of the optional subjects will not be given credit in that subject”.

13. If any candidate’s handwriting is not easily legible, a deduction will be made on this account from the total marks otherwise accruing to him/her. In case of illegible handwriting zero marks will be awarded on this account. Marks will be deducted for irrelevance.

14. Credit will be given for orderly, effective and exact expression combined with due economy of words in all subjects of Examination. Answers to questions in excess of the required number shall not be marked nor taken into account. The marking will be in order of consecutive answers.

15. If any candidate writes his/her Roll No. (except in the space provided for this purpose on the cover of the answer book) or writes his/her name or makes any distinguishing mark at any place in his/her answer book and/or additional Answer Books, he/she shall be awarded Zero marks in that paper, besides any other punishment which the Commission may decide to award.

16. *Candidates must use blue or black ink only in their Answer Book otherwise Zero marks shall be awarded.*

17. (i) **CANDIDATES WILL BE ADMITTED TO THE EXAMINATION PROVISIONALLY AT THEIR OWN RISK SUBJECT TO THEIR BEING FOUND ELIGIBLE IN ALL RESPECTS. ON DETAILED SCRUTINY OF THE APPLICATIONS AFTER THE WRITTEN EXAMINATION IS OVER, IF ANY CANDIDATE IS FOUND INELIGIBLE IN ANY RESPECT UNDER RULES FOR THE EXAMINATION HIS/HER CANDIDATURE WILL BE CANCELLED REGARDLESS OF THE FACT WHETHER HE/SHE HAS APPEARED IN THE EXAMINATION OR QUALIFIED THEREIN.**

**Note : To avoid frustration, the candidates are advised in their own interest to make sure before appearing at the examination that they fulfill all the requirements of the rules, relating to the examination.**

(ii) **Representation against Rejection:**—Representation against rejection of candidature, if so desired, may be submitted (with full justification & authentic proof/supporting documents if any) to the Commission within thirty (30) days of the issuance of the rejection letter. Representation will be entertained only if accompanied with a Treasury receipt of Rs. 100/-. The Commission will decide the representation after allowing an opportunity of personal hearing to the candidates at his/her own expenses.

(iii) **Review Petition:**—Review petition against rejection of representation, if so desired, may be submitted to the Commission within fifteen days of the rejection of representation. Review petition will be entertained only if accompanied with a Treasury Receipt of Rs. 100/-. The decision of the Commission on the review petition shall be final.

#### MEDICAL TEST

18. (i) All candidates except disabled must be in good mental and bodily health and free from any physical defect likely to interfere with the discharge of their duties. The candidates who (after such medical examination as Government or the appointing authority, as the case may be, may prescribe) are found not to satisfy these requirements, will not be appointed.

(ii) **Disabled candidates** in the categories of physically impaired, hearing/speech impaired (deaf & dumb) and visually impaired (blind) are allowed to compete for Competitive Examination against four Occupational Groups/ Services viz: (a) Commerce & Trade Group (b) Pakistan Audit & Accounts Service (c) Information Group & (d) Postal Group in the following manners:

- (1) Disabled candidates viz visually impaired (Blind), Physically impaired, hearing/speech impaired (Deaf & Dumb) will be provided helper such as Writer, if so requested by them in their application forms.
- (2) Extra time viz 15 minutes per hour will be allowed to the visually impaired (Blind) candidates. Request of Computer literate candidates for provision of computer equipment etc. to attempt question papers will be entertained. Examination for such candidates will be held at Islamabad only. However, no TA/DA etc. will be admissible.

**Note : Disabled candidates must submit a certificate of disability issued by the competent authority designated for the purpose by the Federal/Provincial Government.**

(iii) Candidates who qualify in the written examination will be medically examined by the Medical Boards constituted for the purpose. If any candidate remains absent twice in his/her Medical examination, his/her candidature will automatically stand rejected and no appeal in this regard will be entertained. However, his/her chance will be considered as consumed.

(iv) In order to prevent disappointment, candidates are advised to have themselves examined by a Government Medical Officer of the standing of a Civil Surgeon before applying for admission to the examination. Particulars of the nature of the medical test to which candidates will be subjected before appointment and of the standards required are attached with the Rules as Annex "B".

#### Psychological Test

19. All candidates called for *Viva Voce* will be required to undergo Psychological Test, comprising written tests and group tasks. Such tests are designed to assess abilities, attitude and personality characteristics of the candidates with special regard to their aptitude for the Civil Services. Separate marks are not awarded for the Psychological assessment. However, 300 marks assigned to *Viva Voce* also reflect the performance on Psychological Test. Candidates must bring their National Identity Cards and two copies of recent photographs when summoned for Psychological test, and *Viva Voce*. If a candidate remains absent in the Psychological Test, he/she will not be allowed to appear for *Viva Voce*.

#### Viva Voce 300 Marks

20. **Viva Voce:**—Each candidate who qualifies the written part of the exam. will be interviewed by a Board who will have before them a record of his/her career, both academic and

extra-mural. He/she will be asked questions on matters of general interest. The object of the interview is to assess his/her suitability for the services for which he/she is entered and in framing their assessment the Board will attach particular importance to the moral and ethical qualities of the candidates, his/her intelligence and alertness of mind, his/her vigour and strength of character and his/her potential qualities of leadership. The Board will take into consideration his/her extra-mural activities such as sports, debates, hobbies, etc., and their effect on his/her physique and character, in assessing his/her merit.

21. All candidates are expected to have basic knowledge regarding Islam and Pakistan. Questions will be asked in the Interview on these subjects. Persons securing less than pass marks in these subjects will not be considered for appointment to Government jobs, irrespective of their proficiency in other fields. However, the Non-Muslim candidates will not be asked any question regarding Islam.

#### VACANCIES

22. The approximate number of vacancies in BS-17 to be filled on the results of this examination will be announced later. The Government, however, reserves the right to fill a smaller or larger number of vacancies than that announced.

#### APPOINTMENTS

23. (i) Subject to the Recruitment policy explained in Appendix-III of these Rules, candidates securing the highest places on the combined results of the written Examination, Psychological assessment and *Viva Voce Tests* and eligible for appointment will be appointed upto the number of vacancies available. No candidate will, however, be considered for appointment to any of the Groups/Services for which he/she has been declared "not suitable" by the Commission at the time of *Viva Voce Test*.

(ii) When total marks of more than one candidate are equal, the one who gets more marks in viva voce is treated as higher in merit. If marks in viva voce are also equal, the one who gets more marks in compulsory subjects is treated as higher in merit. If marks in compulsory subjects are also equal the one who is older in age is treated as higher in merit.

24. (i) Success in the examination confers no right to appointment. Appointments will be made only after the Government is satisfied, after such enquiry as may be necessary, that the candidate is suitable in all respects for appointment to the Public Service and subject to the availability of vacancies.

(ii) "CANDIDATES WILL BE CONSIDERED FOR THOSE GROUPS/SERVICES ONLY WHICH THEY INDICATE IN THE APPLICATION FORM. NO CANDIDATE WILL BE CONSIDERED FOR THE GROUPS/SERVICES WHICH HE/SHE WILL NOT MENTION IN THE FORM. CANDIDATES WILL HOWEVER, BE GIVEN A CHANCE TO REVISE THEIR CHOICE OF OCCUPATIONAL GROUPS AT THE TIME OF THE *VIVA VOCE TEST*. PREFERENCES SO REVISED AT THE TIME OF *VIVA-VOCE TEST* SHALL BE TREATED AS FINAL AND NO SUBSEQUENT CHANGE WILL BE ALLOWED UNDER ANY CIRCUMSTANCES. THE CANDIDATES MAY OPT FOR A GROUP/SERVICE IRRESPECTIVE OF THE FACT WHETHER THERE IS A VACANCY THEREIN OR NOT".

25. The Commission reserves the right to change the schedule of the examination as well as to cancel any paper/papers or the entire Competitive Examination without assigning any reason.

26. The Government reserves the right to allocate a candidate against any Group/Service irrespective of his/her preferences, in the public interest. No appeal against the decision of the Government will be entertained.

*Note.*—This issues with the approval of the Government.

**BASHIR AHMAD CHAUHAN,**  
*Secretary.*

(CSS-2008)

## PROCEDURE OF COMPETITIVE EXAMINATION (CSS), 2008

### SUBJECTS FOR WRITTEN EXAMINATION (1200 MARKS)

1. (i) The examination will include the following subjects and each subject will carry the marks shown against it.
- (ii) There will be two papers of 100 marks each of the subjects which carry 200 marks. In other subjects there will be one paper. Each paper will be of 3 hours duration.
- (iii) The candidates should expect some objective type questions (MCQ's) in compulsory and optional papers.
- (iv) **The Question Papers** in Urdu or other Pakistani regional languages (Punjabi, Sindhi, Pushto and Balochi), Persian and Arabic should be answered in the respective languages or in Urdu/English unless otherwise directed in the question paper. The question paper in Islamiat is to be answered in English or Urdu only. All other papers must be answered in English unless otherwise directed in the Question Paper. Contravention of this instruction will result in the cancellation of the papers and award of ZERO marks in the paper(s) concerned.
- (v) A Guideline of the syllabus of the subjects is given in Annex "A" to the Rules.
- (vi) **The Non-Muslim candidates** have the option either to take Islamiat as one of the compulsory subject or otherwise Pakistan Affairs (G.K. Paper-III) will be treated of 200 marks in their case and half of the total marks obtained by them in the paper on Pakistan Affairs (G.K. Paper-III) will be counted in lieu of Islamiat.
- (vii) A candidate who does not appear in any compulsory paper will not be allowed to appear in the remaining papers of the Examination.

#### COMPULSORY SUBJECTS (600 MARKS)

(1)	Essay	100
(2)	English (Precis and Composition)	100
(3)	General Knowledge :	
	Paper - I Every Day Science	100
	*(MCQs=50 Marks+Subjective=50 Marks)	
	Paper - II Current Affairs	100
	Paper - III Pakistan Affairs	100
(4)	Islamiat	100
Total :		600

#### OPTIONAL SUBJECTS (600 MARKS)

- (viii) The minimum standard of optional subjects will be that of an honour degree of a university in Pakistan. The candidates are required to select optional subjects carrying a total of 600 marks, **but not more than 200 marks from any box/columns**, as provided in the columns of rules. The grouping of optional subjects are as under:—

\*MCQs are to be attempted on computerized OMR Answer sheet, whereas subjective questions are to be attempted on Answer Book.

Rules	Subjects (Code No.)	Optional Subjects	Marks
Subject(s) carrying not more than 200 marks from Code No. 11 to 14 can be opted. <b>Note: Business Administration cannot be combined with Public Administration</b>	11 12 13 14	Accountancy & Auditing Economics Business Administration Public Administration	200 200 100 100
Subject(s) carrying not more than 200 marks from Code No. 15 to 19 can be opted.	15 16 17 18 19	Political Science Agriculture Forestry Sociology Journalism	200 100 100 100 100
Subject(s) carrying not more than 200 marks from Code No. 20 to 23 can be opted.	20 21 22 23	Pure Mathematics Applied Mathematics Computer Science Statistics	200 200 100 100
Only one subject from Code No. 24 to 29 can be opted.	24 25 26 27 28 29	Physics Geology Geography Chemistry Botany Zoology	200 200 200 200 200 200
Only one subject from Code No. 30 to 34 can be opted.	30 31 32 33 34	Islamic History & Culture History of Pakistan & India British History European History History of the U.S.A.	200 200 200 200 100
Subject(s) carrying not more than 200 marks from Code No. 35 to 40 can be opted. <b>Note: International Law cannot be combined with International Relations.</b>	35 36 37 38 39 40	Law Constitutional Law Mercantile Law Muslim Law & Jurisprudence International Law International Relations	200 100 100 100 100 100
Only one subject from Code No. 41 to 42 can be opted.	41 42	Philosophy Psychology	200 200
Only one Regional Language from Code No. 43 to 46 can be opted. <b>Note: Regional Languages cannot be combined with Urdu.</b>	43 44 45 46	Sindhi Pushto Punjabi Balochi	100 100 100 100
Only one National/Foreign/Classical Language from Code No. 47 to 50 can be opted. <b>Note: Urdu cannot be combined with Regional Languages.</b>	47 48 49 50	English Literature Urdu Persian Arabic	200 200 200 200

**COMPETITIVE EXAMINATION (CSS), 2008  
RATE OF FEES**

1. The following fees must be paid by the candidates :—

(A) To the Federal Public Service Commission.

- (i) **Rs. 1000/- for all candidates. (Application fee)**
- (ii) **Rs. 100/- for each representation/review petition which a candidate wants to submit against his/her rejection.**
- (iii) **Rs. 200/- per paper as fee for recounting of marks.**

The procedure for the payment of this fee is given in the "Instructions to candidates" which have been printed separately and a copy of which is attached with the Application form.

(B) To the Medical Board.

- (i) **Rs. 50/-** to be deposited by all the candidates in the Government Treasury/State Bank of Pakistan under Head of Account "1252—Health MISC MEDICAL (CENTRAL)".

The original copy of the Treasury challan should be handed over to the President of the Central Medical Board at the time of Medical Examination.

- (ii) **Rs. 350/-** before examination by a Medical Board in the case of candidates who qualify in the written examination. Payment of this fee will be required to be made in cash to the Medical Board concerned at the time of physical examination of the candidates. Candidates will present their National Identity Cards & Admission Certificates to the Medical Authorities concerned.
- (iii) A Candidate who is medically deferred will have to make the full payment again to the Medical Board at the time of re-examination.

**2. Candidates must see by reference to the rules and must decide definitely before depositing the fee in the Treasury/Bank that they are eligible in all respects to apply for the examination. Fee once deposited in the Treasury/Bank will not be refunded, nor will it be held in reserve for any other examination or selection under any circumstances.**

This issues with the approval of the Government.

APPENDIX III

**COMPETITIVE EXAMINATION, 2008  
RECRUITMENT POLICY**

1. The following merit, and provincial/regional quotas shall be observed in filling vacancies reserved for direct recruitment to posts under the Federal Government which are filled on all Pakistan basis in pursuance of Establishment Division O.M. No. 4/10/2006-R-2, dated 12-02-2007;—

Merit	<b>7.5%</b>
Punjab (including Federal Area of Islamabad)	<b>50%</b>
Sindh The share of Sindh will be further sub-allocated in the following ratio: Urban areas namely Karachi, Hyderabad and Sukkur (40% of 19% or <b>7.6%</b> ) Rural Areas i.e. rest of Sindh excluding Karachi, Hyderabad and Sukkur (60% of 19% or <b>11.4%</b> )	<b>19%</b>
NWFP	<b>11.5%</b>
Balochistan	<b>6%</b>
Northern Areas and Federally Administered Tribal Areas	<b>4%</b>
AJK	<b>2%</b>
Note: (i) <b>10% quota is reserved for women from the share of Provinces/Regions except Merit quota in terms of Establishment Division's OM No. 3/17/2005-R-2 dated 26-09-2006. Un-filled vacancies will be carried forward.</b> (ii) Disabled candidates will compete in accordance with the Government recruitment policy, as there will be no separate quota for disabled candidates.	

2. Sindh (Urban) refers only to the city areas of Karachi, Hyderabad and Sukkur. Cantonment areas are counted as part of the city. The areas under the Jurisdiction of the District Councils of these district are the rural areas.

3. "Federally administered Tribal Areas" include:—

- |   |                                  |
|---|----------------------------------|
| (i) Tribal Areas adjoining Peshawar district;   | (vii) Orakzai Agency;            |
| (ii) Tribal Areas adjoining Bannu district;     | (viii) Khyber Agency;            |
| (iii) Tribal Areas adjoining D.I.Khan district; | (ix) Kurram Agency;              |
| (iv) Tribal Areas adjoining Kohat district;     | (x) North Waziristan Agency; and |
| (v) Bajour Agency;                              | (xi) South Waziristan Agency.    |
| (vi) Mohmand Agency;                            |                                  |

4. Appointment to vacancies to be filled in by candidates belonging to a particular community or a province/region shall be made by Government in the order of Merit of the candidates belonging to a particular community or a province/region provided that they have qualified in the examination and are in all respects suitable for employment under Government.

5. On appointment to BS-17 posts, a candidate will be required to execute a bond, with one surety, to refund all moneys paid to him/her or spent in connection with his/her training, as may be determined by the President in the event of failing to complete his/her probation to the satisfaction of the President or resigning his/her service during that period or within three years thereafter in the even of failing to complete.

6. On appointment, the probationer will be required to undergo such training as may be prescribed by the Government.

7. If any vacancies reserved in terms of paragraphs 1-2 above cannot be filled by reason of failure of candidates to pass the qualifying standard or otherwise, such vacancies will be carried over and filled in on the result of the next year's examination from among the candidates in whose quota the vacancies are so reserved.

8. Provincial or regional quotas in respect of posts in a particular year shall be worked out to the 1000th fraction. A Province or region having larger fraction in accordance with the prescribed quotas shall be allocated the vacant post for recruitment whereas the Province or region not allocated the post due to smaller fraction shall get those fractions carried forward and added to its share in the subsequent year in accordance with procedure set out as below:—

Province/ Region	Quota (%)	No. of Vacancies	Share	Last Year's C/F Balance	Total	Vacancies to be allotted	Balance to be carried forward
<b>1st Year</b>							
Merit	7.5%	03	0.225	—	0.225	—	(+)0.225
Punjab	50%	03	1.500	—	1.500	02	(-)0.500
<b>*Sindh</b>	<b>19%</b>	<b>03</b>	<b>0.570</b>	<b>—</b>	<b>0.570</b>	<b>01</b>	<b>(-)0.430</b>
Sindh (U)	7.6%	03	0.228	—	0.228	—	(+)0.228
Sindh (R)	11.4%	03	0.342	—	0.342	01	(-)0.658
NWFP	11.5%	03	0.345	—	0.345	—	(+)0.345
Balochistan	6%	03	0.180	—	0.180	—	(+)0.180
FATA	4%	03	0.120	—	0.120	—	(+)0.120
AJK	2%	03	0.060	—	0.060	—	(+)0.060
<b>2nd Year</b>							
Merit	7.5%	05	0.375	(+)0.225	0.600	01	(-)0.400
Punjab	50%	05	2.500	(-)0.500	2.000	02	—
<b>*Sindh</b>	<b>19%</b>	<b>05</b>	<b>0.950</b>	<b>(-)0.430</b>	<b>0.520</b>	<b>01</b>	<b>(-)0.480</b>
Sindh (U)	7.6%	05	0.380	(+)0.228	0.608	01	(-)0.392
Sindh (R)	11.4%	05	0.570	(-)0.658	(-)0.088	—	(-)0.088
NWFP	11.5%	05	0.575	(+)0.345	0.920	01	(-)0.080
Balochistan	6%	05	0.300	(+)0.180	0.480	—	(+)0.480
FATA	4%	05	0.200	(+)0.120	0.320	—	(+)0.320
AJK	2%	05	0.100	(+)0.060	0.160	—	(+)0.160
<b>3rd Year</b>							
Merit	7.5%	02	0.150	(-)0.400	—	—	—
Punjab	50%	02	1.000	—	1.000	01	—
<b>*Sindh</b>	<b>19%</b>	<b>02</b>	<b>0.380</b>	<b>(-)0.480</b>	<b>(-)0.100</b>	<b>—</b>	<b>(-)0.100</b>
Sindh (U)	7.6%	02	0.152	(-)0.392	(-)0.240	—	(-)0.240
Sindh (R)	11.4%	02	0.228	(-)0.088	0.140	—	(+)0.140
NWFP	11.5%	02	0.230	(-)0.080	0.150	—	(+)0.150
Balochistan	6%	02	0.120	(+)0.480	0.600	01	(+)0.400
FATA	4%	02	0.080	(+)0.320	0.400	—	(-)0.600
AJK	2%	02	0.040	(+)0.160	0.200	—	(+)0.200

**\*Provided that Sindh shall be allowed quota of 19% first and then the posts fallen to its share shall be sub-divided between Sindh (U) and Sindh (R) at the ratio of 7.6% and 11.4% respectively.**

9. THE POLICY LAID DOWN ABOVE IS LIABLE TO MODIFICATION AND ANY CHANGE WHICH MAY BE MADE THEREIN WILL BE APPLICABLE TO THE CANDIDATES FOR THIS EXAMINATION.

**Note:** This issues with the approval of the Government.

**FEDERAL PUBLIC SERVICE COMMISSION****COMPETITIVE EXAMINATION (CSS), 2008****INDEX OF SUBJECTS**

The optional subjects have been arranged in alphabetical order for facility of candidates. However, the selection of combination of optional subjects will be governed by the provisions of sub-para (viii) of Rule 1 of Appendix-I.

S. No.	Name of Subject	Paper	Page	S. No.	Name of Subject	Paper	Page
	<b><u>Compulsory Subjects</u></b>						
1.	Essay	—	9	21.	Geology.	I & II	22
2.	English (Precis & Composition)	—	9	22.	History of Pakistan and India.	I & II	22, 23
3.	(i) General Knowledge (Every Day Science).	I	9	23.	History of the U.S.A.	—	23
	(ii) General Knowledge (Current Affairs).	II	10	24.	International Law.	—	23, 24
	(iii) General Knowledge (Pakistan Affairs).	III	10,11	25.	International Relations.	—	24
4.	Islamiat	—	11	26.	Islamic History and Culture.	I & II	24, 25
	<b><u>Optional Subjects</u></b>			27.	Journalism. (Mass Communication)	—	25
5.	Accountancy & Auditing.	I & II	12	28.	Law.	I & II	26
6.	Agriculture.	—	12, 13	29.	Mercantile Law.	—	26
7.	Applied Mathematics.	I & II	13	30.	Muslim Law & Jurisprudence.	—	26
8.	Arabic.	I & II	13, 14	31.	Persian.	I & II	26, 27
9.	Balochi.	—	14	32.	Philosophy.	I & II	27
10.	Botany.	I & II	15	33.	Physics.	I & II	27, 28
11.	British History.	I & II	15, 16	34.	Political Science.	I & II	28, 29
12.	Business Administration	—	16	35.	Psychology including Experimental Psychology.	I & II	29
13.	Chemistry.	I & II	16, 17	36.	Public Administration.	—	30
14.	Computer Science	—	17, 18	37.	Punjabi.	—	30
15.	Constitutional Law.	—	18	38.	Pure Mathematics.	I & II	31
16.	Economics.	I & II	18	39.	Pushto.	—	31
17.	English Literature.	I & II	18, 19	40.	Sindhi.	—	31—33
18.	European History.	I & II	19-21	41.	Sociology.	—	33
19.	Forestry.	—	21	42.	Statistics.	—	33, 34
20.	Geography.	I & II	21, 22	43.	Urdu.	I & II	34
				44.	Zoology.	I & II	34, 35

## GUIDELINES OF THE SYLLABUS

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

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

### 1. ESSAY (COMPULSORY)

Total Marks—100

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

### 2. ENGLISH (PRECIS & COMPOSITION) (COMPULSORY)

Total Marks—100

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

The candidates should be capable of :

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

#### Grammar and Vocabulary

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

There shall be no prescribed course for this purpose.

#### Reading Comprehension and Analysis

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

#### Precis Writing

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

#### ENGLISH (PRECIS & COMPOSITION) (COMPULSORY) SUGGESTED READINGS

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

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

### 3. GENERAL KNOWLEDGE

Total Marks—300

#### PAPER I

#### EVERY DAY SCIENCE (COMPULSORY)

Marks—100

#### 1. Introduction

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

#### 2. The Physical Sciences

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

#### 3. Biological Sciences

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

#### EVERY DAY SCIENCE (COMPULSORY) SUGGESTED READINGS

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

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

(Marks—100)

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

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

**CURRENT AFFAIRS (COMPULSORY)**

**SUGGESTED READINGS**

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

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

(Marks—100)

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

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

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

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

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

**PAKISTAN AFFAIRS (COMPULSORY)**

**SUGGESTED READINGS**

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

4. ISLAMIAT (COMPULSORY)

Total Marks—100

1. Basic Problems of Human Life and their Solutions

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

2. Need of Religion and its role in Human Life

Islam and other religions.

3. Islam

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

4. Fundamental Beliefs and Practices of Islam

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

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

5. Islamic Way of Life

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

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

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

(d) Islamic Political System :—

(i) Legislative System

(ii) Judicial System

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

6. Quranic Ayat and their Translation.

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

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

اسلامیات (لازمی)

(ایک سو سے زائد سو)

کل نمبر 100

1۔ انسان کے سماجی مسائل اور ان کا حل۔ کلمہ حق کے زوال کی وجہ سے ظلم اور ستم اور انسانی مسائل کا حل۔ دینی حکمت اور ذہنی۔

2۔ غنیمت کی ضرورت اور انسانی زندگی میں اس کا مقام۔ اسلام اور دوسرے مذہبوں میں۔

اسلام۔ سنی اور معلوم۔ دین اور رسالہ۔ اسلام کا تصور حیات اور انسانیت اور اسلام میں انسانیت کو مستطاب۔ انسان کو مستطاب وقت۔ اسلامی نظریہ کی دنیاوی خصوصیات۔

اسلام کے بنیادی عقائد اور عقائد۔ (الف) نبیوں و رسل۔ (ب) مخلوق۔ سوم۔ زکوٰۃ۔ حج۔ عبادت۔

اسلامی نظام زندگی۔

(الف) شریعت کے ماخذ۔ قرآن۔ منہجہ اجماع۔ قیاس۔ اور اجتہاد

(ب) اسلام کا معاشرتی نظام۔ اہل بیت و ان کے اہل بیت اور ان کے اہل بیت۔ اسلامی معاشرے میں عورت اور مرد کا کردار۔ عورت کی آزادی کا مفہوم۔ نیک نسل کی تعمیر عورت اور مرد کی ذمہ داریوں۔

(ج) مذہب و اخلاق۔ تہذیب و اخلاق۔ ایمان اور اخلاق الہامی عقائد۔ غیر مذہبی کے اسلامی اصول اور طریقہ۔ اسلام میں اخلاقی اقدار۔

اسلام کا باہمی نظام۔ نظام عقائد و عقائد

مستطاب۔ شہادت اسلام کا تصور و تصور۔

ہا۔ قرآنی آیات اور ان کا ترجمہ

- قرآن مجید کی سورہ ذیل کے نمبر : 1۔ سورہ تین۔ سورہ نور۔ سورہ 1۔ سورہ انعام۔ سورہ 2۔ سورہ بقرہ۔ سورہ 3۔ سورہ آل عمران۔ سورہ 4۔ سورہ النساء۔ سورہ 5۔ سورہ مائدہ۔ سورہ 6۔ سورہ انعام۔ سورہ 7۔ سورہ انفصاح۔ سورہ 8۔ سورہ انفصاح۔ سورہ 9۔ سورہ انفصاح۔ سورہ 10۔ سورہ انفصاح۔

ISLAMIAT (COMPULSORY) SUGGESTED READINGS

Title	Author
1. Introduction to Islam.	Dr. Hamidullah
2. Islamic Ideology	Dr. Khalifa Abdul Hakim
3. Ideology of the Future	Dr. Muhammad Rafiuddin
4. Islam : The Misunderstood Religion	Muhammad Qutub
5. Islam : Its meaning and Message	Khushid Ahmed
6. Islam the Religion	Syed Anwar Ali
7. The Religion of Islam	Ahmad A. Galwash
8. Outlines of Islamic Culture	A.M.A. Shushtery
9. اسلامی تصنیف اور اس کے اصول و اصولی	سید محمد علی ہودودی
10. اسلام کی بنیاد و نظریہ	سید محمد علی ہودودی
11. انصاف الاسلامیہ	ڈاکٹر محمد علی ہودودی
12. اسلامی نظریہ	ڈاکٹر محمد علی ہودودی
13. اسلامی دنیا میں مسلمانوں کے حقوق و ذمہ داری کے احکامات	سید محمد علی ہودودی
14. اسلام اور معاشرہ و تمدن کے تعلق	محمد علی ہودودی
15. اسلام کا اخلاقی نظام	محمد علی ہودودی
16. اسلام کا نظام و اصول	محمد علی ہودودی
17. عقائد و عقائد	محمد علی ہودودی
18. قرآن اور غیر قرآنی	محمد علی ہودودی
19. اسلامی نظام و عقائد	محمد علی ہودودی

**5. ACCOUNTANCY AND AUDITING**

Total Marks—200

PAPER I

(Marks—100)

ACCOUNTING

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

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

PAPER—II

(Marks—100)

**(a) Cost Accounting**

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

**(b) Auditing**

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

**(c) Income Tax**

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

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

**(d) Business Organization and Finance**

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

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

**6. AGRICULTURE**

Total Marks—100

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

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

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

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

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

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

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

ACCOUNTANCY AND AUDITING

SUGGESTED READINGS

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

AGRICULTURE

SUGGESTED READINGS

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

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

**7. APPLIED MATHEMATICS**

Total Marks—200  
PAPER—I  
(Marks—100)

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

**SECTION A**

**Vector Analysis**

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

**Statics**

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

**SECTION B**

**Dynamics**

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

**APPLIED MATHEMATICS**

**PAPER—II**  
(Marks—100)

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

**SECTION A**

**Differential Equations**

Linear differential equations with constant and variable coefficients.

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

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

**SECTION B**

**Tensor**

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

**SECTION C**

**Elements of Numerical Analysis**

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

**APPLIED MATHEMATICS**

**SUGGESTED READINGS**

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

**8. ARABIC**

**PAPER—I**  
Total Marks—200  
Marks—100

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



**10. BOTANY**

Total Marks—200

**PAPER—I**

(Marks—100)

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

**BOTANY****PAPER—II**

(Marks—100)

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

**BOTANY****SUGGESTED READINGS**

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

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

**11. BRITISH HISTORY**

Total Marks—200

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

*Paper I.*

(Marks—100)

From 1688 to 1850

*Paper II.*

(Marks—100)

From 1850 to the present day.

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

**BRITISH HISTORY****SUGGESTED READINGS**

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

(CSS-2008)

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

## 12. BUSINESS ADMINISTRATION

Total Marks—100

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

### PART-I

#### MANAGEMENT

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

### PART-II

#### PRINCIPLES OF MARKETING

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

### PART-III

#### FINANCIAL MANAGEMENT

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

#### BUSINESS ADMINISTRATION

##### SUGGESTED READINGS

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

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

## 13. CHEMISTRY

Total Marks—200

### PAPER—I

(Marks—100)

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

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

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

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

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

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

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

8. Pollution—Water, air.

## CHEMISTRY

### PAPER—II

(Marks—100)

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

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

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

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

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

(CSS-2008)

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

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

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

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

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

## CHEMISTRY

### SUGGESTED READINGS

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

## 14. COMPUTER SCIENCE

Total Marks—100

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

### SECTION-A

#### Computer Architecture

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

#### Operating System

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

#### Computer Networks

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

### SECTION-B

#### Structured and Object Oriented Programming

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

#### Data Structures and Algorithms

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

#### Software Engineering

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

### SECTION-C

#### Data Base Management

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

#### Web Programming

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

#### Computer Graphics

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

### SUGGESTED READINGS

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

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

(CSS-2008)

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

### 15. CONSTITUTIONAL LAW

Total Marks—100

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

#### CONSTITUTIONAL LAW

#### SUGGESTED READINGS

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

### 16. ECONOMICS

Total Marks—200

#### PAPER—I

(Marks—100)

#### 1. **Micro Economics**

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

#### 2. **Macro Economics**

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

#### 3. **Money and Banking**

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

#### 4. **Public Financing**

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

#### 5. **International Trade**

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

#### ECONOMICS

#### PAPER—II

(Marks—100)

#### PAKISTAN'S ECONOMY

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

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

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

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

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

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

#### ECONOMICS

#### SUGGESTED READINGS

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

*Note.*—The candidates should be familiar with:—

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

### 17. ENGLISH LITERATURE

Total Marks—200

#### PAPER—I

Marks—100

Detailed study of a literary age (19th century)

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

(CSS-2008)

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

### ENGLISH LITERATURE

#### PAPER—II

(Marks—100)

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

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

### ENGLISH LITERATURE

#### SUGGESTED READINGS

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

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

### 18. EUROPEAN HISTORY

Total Marks—200

(1789—1914)

#### PAPER—I

(Marks—100)

#### I. French Revolution

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

#### II. Napoleon Bonaparte

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

#### III. Vienna Settlement and concept of Europe

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

#### IV. England 1814 to 1833

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

#### V. Europe 1815 to 1848

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

#### VI. The Eastern Question 1820 to 1878

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

(CSS-2008)

### VII. Risorgimento and the Union of Italy

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

### VIII. Unification of Germany

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

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

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

### X. England 1893 to 1910

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

### XI. Road to the First World War

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

## EUROPEAN HISTORY

(1914—1960)

### PAPER—II

(Marks—100)

#### I. First World War

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

#### II. Peace Treaties

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

#### III. The League of Nations

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

#### IV. Marxism and the Soviet Union

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

#### V. Italy and Fascism

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

#### VI. Germany and Nazism

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

#### VII. France between the two Wars

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

#### VIII. England between the two Wars

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

### IX. The Second World War

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

### X. The U.N.O.

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

### XI. The Political State of Europe 1945—50

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

### XII. The Rise of Russia as a Great power

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

### XIII. France after the Second World War

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

### XIV. England after the Second World War

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

### XV. Europe and Common Market

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

## EUROPEAN HISTORY

### SUGGESTED READINGS

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

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

### 19. FORESTRY

Total Marks—100

Forestry :

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

### FORESTRY

#### SUGGESTED READINGS

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

### 20. GEOGRAPHY

Total Marks—200

#### PAPER—I

#### PHYSICAL AND GENERAL GEOGRAPHY

(Marks—100)

#### 1. Elements of Weather and Climate

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

#### 2. Landforms

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

#### 3. Oceans

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

#### 4. Study of Maps

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

#### PAPER—II

#### HUMAN, ECONOMIC AND REGIONAL GEOGRAPHY

(Marks—100)

#### 1. Human Geography

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

#### 2. Economic Geography

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

#### 3. Regional Geography

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

#### GEOGRAPHY

#### SUGGESTED READINGS

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

(CSS-2008)

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

## 21. GEOLOGY

Total Marks—200

### PAPER—I

(Marks—100)

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

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

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

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

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

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

## GEOLOGY

### PAPER—II

(Marks—100)

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

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

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

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

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

## GEOLOGY

### SUGGESTED READINGS

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

## 22. HISTORY OF PAKISTAN AND INDIA

Total Marks—200

### PAPER—I

(Marks—100)

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

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

Structure of the Muslim society.

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

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

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

### PAPER—II

(Marks—100)

Part A : 1857—1947

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

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

(CSS-2008)

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

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

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

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

#### PAKISTAN SINCE 1947

##### Part B

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

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

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

#### HISTORY OF PAKISTAN AND INDIA

##### SUGGESTED READINGS

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

#### 23. HISTORY OF THE U.S.A.

Total Marks—100

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

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

#### HISTORY OF THE U.S.A.

##### SUGGESTED READINGS

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

#### 24. INTERNATIONAL LAW

Total Marks—100

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

(CSS-2008)

## INTERNATIONAL LAW

## SUGGESTED READINGS

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

**25. INTERNATIONAL RELATIONS**

Total Marks—100

**Part—A**

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

**Part—B**

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

**Part—C**

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

## INTERNATIONAL RELATIONS

## SUGGESTED READINGS

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

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

**26. ISLAMIC HISTORY AND CULTURE**

Total Marks—200

**PAPER—I**

(Marks—100)

**I. Humanity at the dawn of Islam**

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

**II. Advent of Islam**

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

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

**III. Foundation of Muslim State**

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

**IV. The Grandeur of Islam**

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

**V. The Ottoman Caliphate**

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

**PAPER—II**

(Marks—100)

**I. Islam in Africa and Spain**

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

**III. Muslim Arts**

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

**IV. Renaissance and Reformation**

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

Dissemination of Muslim learnings in the West.

**V. Modern World**

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

## ISLAMIC HISTORY AND CULTURE

## SUGGESTED READINGS

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

(CSS-2008)

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

**27. JOURNALISM (MASS COMMUNICATION)**

Total Marks—100

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

**SECTION-A**

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

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

- (a) News function

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

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

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

**SECTION-B**

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

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

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

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

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

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

**JOURNALISM**

**SUGGESTED READINGS**

<i>Title</i>	<i>Author</i>
1. Advertising Operations and Management	Beinton
2. Contemporary Public Relations	Garkan Gene & Scott.
3. Communication in Power	Herbert Brucver.
4. Exploring Journalism	Wosley and Campbell.
5. Editor and Editorial Writing	A Gayle Waldrop.
6. Hand Book of Public Relations	Stephenson Howard.
7. Journalism in Pakistan	Dr. Abdus Slam Khurshid
8. Mass Communication	Wilbur Schram.
9. Newspaper Organization and Management	Rucker
10. Practical Newspapers Reporting	Geofrey Haris & David Spark.
11. Process and Effects of Mass Communication	Wilbur Schram.
12. Radio & T.V. Writing	Max Wylie
13. <i>روزنامہ کی تاریخ</i>	<i>محمد تقی حسینی</i>
14. <i>سوانح پاکستانی روزناموں کی</i>	<i>ذوالفقار علی خان بخاری</i>
15. <i>ٹیلی ویژن اور ریڈیو</i>	<i>ڈاکٹر مسکین علی خان بخاری</i>
16. <i>ٹیلی فون اور ٹیلی گراف</i>	<i>ڈاکٹر مسکین علی خان بخاری</i>
17. <i>ٹیلی فون اور ٹیلی گراف</i>	<i>ڈاکٹر مسکین علی خان بخاری</i>

**28. LAW**

Total Marks—200

**PAPER—I**

(Marks—100)

Civil Procedure Code, Contract Act and Law of Torts.

**PAPER—II**

(Marks—100)

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

**LAW****SUGGESTED READINGS**

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

**29. MERCANTILE LAW**

Total Marks—100

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

**MERCANTILE LAW****SUGGESTED READINGS**

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

**30. MUSLIM LAW AND JURISPRUDENCE**

Total Marks—100

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

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

**MUSLIM LAW AND JURISPRUDENCE****SUGGESTED READINGS**

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

2. The Principles of Mohammadan Jurisprudence.

Sir Abdur Rahim

**31. PERSIAN**

Total Marks—200

**Aims**

The aims of the syllabus in Persian are as follows :

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

**PAPER—I**

Marks—100

1. (a) Origin and development of the language.

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

- (ii) The advent of Persian prose and poetry in the present script in the Islamic era.
- (iii) The earlier Persian prose writers and poets upto 4th century H/10th century A.C.

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

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

- (ii) Translation of simple English passage into Persian.

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

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

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

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

3. Short essay in Persian \_\_\_\_\_

**PAPER—II**

Marks—100

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

- (a) Texts

1. Farrukhi Seestani.  
(Qasida on the conquest of Soomnath)
2. Unsar-ul-Maali Qabus (Qabus Nama).

Last Chapter 44

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

4. Saadi Gulistan. Chapter 7 & 8.

5. Hafiz  
Diwan upto radif Re

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

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

PERSIAN

SUGGESTED READINGS

Title	Author
1. Iranian Revolution	Dr. Wahiduz-Zaman Qureshi,
2. Modern Trends in the Persian Language.	Dr. A. Shakoor Ahsan,
3. موسسه تاسد ایران (اردو)	پروفیسر زاہد ذوالفقار بک
4. تصنیف اہم ترین (اردو)	سید نسیم گیلانی
5. مقالہ کامل (اردو)	مولانا سعید اعجاز نعیمی
6. مقالہ در زبان و ادب فارسی	دکتر سعید محمد آفرم
7. تاریخ ادبیات ایران (اردو)	دکتر گلشیرین احمد
8. تاریخ ادبیات ایران	دکتر مسعود رضانوردی
9. تاریخ ادبیات ایران	دکتر سعید احمد رازی
10. تاریخ ادبیات ایران (اردو)	پروفیسر سید علی حسینی
11. دستور لغت	دکتر محمد عواد گلگوردی
12. دستور لغت فارسی	دکتر سعید احمد رازی
13. نظریات زبان (اردو)	سید احمد گیلانی
14. مقالہ ادبیات (اردو)	عابد علی عابد
15. مقالہ ادبیات (اردو)	غیاث محمد سعید
16. مقالہ ادبیات	دکتر سعید احمد رازی
17. مقالہ ادبیات	پروفیسر گلشیرین احمد
18. مقالہ ادبیات	دکتر سعید احمد رازی

32. PHILOSOPHY

Total Marks—200

PAPER—I

(Marks—100)

LOGIC

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

PAPER—II

(Marks—100)

PHILOSOPHY—WESTERN AND ISLAMIC

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

PHILOSOPHY

SUGGESTED READINGS

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

33. PHYSICS

Total Marks—200

PAPER—I

(Marks—100)

Mechanics

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

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

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

Fluid Mechanics

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

Waves and Oscillation

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

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

### Heat and Thermodynamics

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

### PAPER—II

(Marks—100)

### Electricity and Magnetism

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

### Electronics

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

### Atomic Physics

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

### Nuclear Physics

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

### PHYSICS

#### SUGGESTED READINGS

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

### 34. POLITICAL SCIENCE

Total Marks—200

#### PAPER—I

(Marks—100)

#### PART 'A'

##### 1. Political Theory

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

#### PART 'B'

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

### POLITICAL SCIENCE

#### PAPER—II

(Marks—100)

#### PART 'A'

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

#### PART 'B'

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

### POLITICAL SCIENCE

#### SUGGESTED READINGS

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

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6.	Govt. and Politics in Pakistan	Mushtaq Ahmed
7.	History of Political Theory	George H. Sabine
8.	History of Political Theories (Three Volumes)	William A. Dunning
9.	Political Thought in Medieval Islam	Rosenthal
10.	Modern Islamic State	Rosenthal
11.	Political Thought in perspective	William Edenstein
12.	Patterns of Governments	Samuel H. Beer Adem B. Ullam
13.	Pakistan A Political Study	Keith Callard
14.	Politics, Parties and Pressure Groups	V.O. Key Jr.
15.	Modern Political Systems : Asia	Roy, C. Macradis (Ed.)
16.	Politics in Pakistan : Nature and Direction of Change	Khalid Bin Sayeed
17.	Reflection on Government	Earnest Barker
18.	South-East Asia Political System	Lucian W. Pye
19.	The Political System of Pakistan	Khalid B. Sayeed
20.	Nizam-ul-Mulk Tusi, Published by Mohammad Ashraf, Lahore, 1978	Rizvi S. Rizwan Ali
21.	پروفیسر ڈاکٹر رضوان علی رضوی کے انتظام میں "انٹیم نیشنل سیمینار" منعقد کیا گیا اور اس کے نتیجے میں اس کتاب کا مجموعہ تیار کیا گیا۔ (فروری 1995ء)	

**35. PSYCHOLOGY INCLUDING EXPERIMENTAL PSYCHOLOGY**

Total Marks—200

**PAPER—I**

(Marks—100)

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

**PSYCHOLOGY INCLUDING EXPERIMENTAL PSYCHOLOGY**

**PAPER—II**

(Marks—100)

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

**PSYCHOLOGY INCLUDING EXPERIMENTAL PSYCHOLOGY**

**SUGGESTED READINGS**

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

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**36. PUBLIC ADMINISTRATION**

Total Marks—100

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

**PUBLIC ADMINISTRATION  
SUGGESTED READINGS**

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

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

**37. PUNJABI**

**پنجابی**

**کل نمبر (100)**

**تقریب (50 نمبر)**

- 1- نوک کیت سوری 'پولی' ناوی 'وسو' نمبر سوار مل رتیا وسنگیت
- 2- کل نکی شامری (اعلیٰ) تعلقہ ڈاٹرے شکرگج، سلطان پور، بلوچ شہہ اٹلہ سینگ سے نوامہ لکھ لڑی (ب) رتیا وسنگیت شہہ اٹلہ (پولی) رتیا وسنگیت (سرا امانتوں) ' مری جرنل (سیفہ قلمو کر)۔
- 3- لوہی شامری تک حراس دی راجن جکراستہ سگری راجن سیکر گزسٹ ڈکاپہ واسار

**تر (50 نمبر)**

- 1- اسلامی آدمی موافقتیہ سچ لکھا جی سرگور (پیرت) غلپہ دی پنجاب جتھہ (عادل) ڈاٹری دیہہ سنگھ (زارا سر) کالیاں ایلن کالے انور علی روز وانا سار
- 2- دیو دیہہ سنگھ پرتھو پنجابی و حور راجت غلپہ دی سب دی کھانی سید علی
- 3- پنجابی شازراں ڈاٹریگ کار شہہ دیوانت پنڈت سنگھ دیہہ (جلد 13) جھا پون لوہی لکھی پنجاب دیہہ لوک دیہہ یمن جھوڑی ناریں

**پنور ڈکریٹ برائے استناد**

- 1- موہن ایلن کھتری
- 2- سر جی کرہ موہ کھتری سید شامری محمد
- 3- طاہر پنجاب پورہ رتیا وسنگیت
- 4- شریہ کھتری
- 5- ڈاٹری سرگور ایلن کھتری
- 6- تصویر دیہہ جھوڑی
- 7- ایلن کھتری
- 8- جھج کھتری

**38. PURE MATHEMATICS**

Total Marks—200  
**PAPER—I**  
 (Marks—100)

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

**SECTION A**

**Modern Algebra**

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

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

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

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

**SECTION B**

**Geometry**

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

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

**PAPER—II**

(Marks—100)

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

**SECTION A**

**Calculus and Real Analysis**

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

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

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

**SECTION B**

**Complex Analysis**

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

**PURE MATHEMATICS**

**SUGGESTED READINGS**

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

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

**39. PUSHTO**

Total Marks—100

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

**PUSHTO**

**SUGGESTED READINGS**

Title	Author
1. Foreign Approach to Khushal Khan Khattak.	Dost Muhammad Kamil.
2. Pushto Poetry	Major Roverty.
3. Selected Poems of Khushal Khan Khattak.	Major Roverty.
4. The Pathans	Sir Olaf Careo.
۵. د وېلو پوښتنې	عاشق پښتو صاحب
۶. پښتانه شعراء	پانگه پښتو صاحب
۷. پښتانه لکوالان	پانگه پښتو صاحب
۸. ارمې ندرت	پانگه پښتو صاحب
۹. دشمن بابا	پانگه پښتو صاحب
۱۰. نورغزالي خان بابا	پانگه پښتو صاحب
۱۱. کلياته دشمنان	پانگه پښتو صاحب
۱۲. پښتو ژبې (پښتو)	پانگه پښتو صاحب
۱۳. پښتو ژبې (پښتو)	پانگه پښتو صاحب
۱۴. پښتو ژبې (پښتو)	پانگه پښتو صاحب

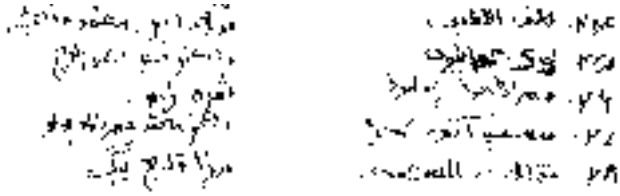
**40. SINDHI**

**SINDHI**

Total Marks—100

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





#### 41. SOCIOLOGY

Total Marks—100

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

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

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

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

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

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

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

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

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

#### SOCIOLOGY

##### SUGGESTED READINGS

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

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

#### 42. STATISTICS

Total Marks—100

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

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

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

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

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

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

#### STATISTICS

##### SUGGESTED READINGS

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

(CSS-2008)



**ZOOLOGY****PAPER—II**

(Marks—100)

**GENERAL ZOOLOGY**

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

**Part—A**

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

**Part—B**

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

**Part—C**

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

**Part—D**

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

**Part—E**

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

**ZOOLOGY****SUGGESTED READINGS**

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

**FEDERAL PUBLIC SERVICE COMMISSION**  
**REGULATIONS FOR PHYSICAL EXAMINATION**

**COMPETITIVE EXAMINATION (CSS), 2008**

1. These regulations are published for the convenience of candidates and in order to enable them to ascertain the probability of their coming up to the required physical standard. But it must be clearly understood that the Government of Pakistan reserve to themselves an absolute discretion to reject as unfit any candidate whom they may consider, on the report of the Medical Board, to be physically disqualified for the Services and that their discretion is in no respect limited by these regulations.

2. If any change is made in the standard of physical fitness, an announcement will be made accordingly before the examination.

**3. Night blindness will be a cause of rejection for District Management Group, Police Service of Pakistan, Customs and Excise Group and Railways (Commercial and Transportation ) Group”.**

**4. Disabled candidates in the categories of physically impaired, hearing/speech impaired (deaf & dumb) and visually impaired (blind) are allowed to compete for Competitive Examination against four Occupational Groups/Services viz; (a) Commerce & Trade Group (b) Pakistan Audit & Accounts Service (c) Information Group & (d) Postal Group.**

5. To be passed as fit for appointment a candidate must be in good mental and bodily health and free from any physical defect likely to interfere with the efficient performance of the duties of his/her appointment. Candidates whose height is less than 1524 millimetres will not be considered physically fit for appointment to any of the BS 17 post under the Federal Government. In the case of female candidates, this standard will be reduced to 1473 millimetres for posts which are completely sedentary provided the weight of such candidates is not less than 43.5 kilograms.

6. (a) In the matter of the correlation of age, height and chest-girth of candidates, it is left to the Medical Board to use whatever correlation figures are considered most suitable as a guide in the examination of the candidates except for the Police.

***For the Police***

(b) The correlation of age, height and chest-girth will not be less than that given in the following table :—

**PHYSICAL EQUIVALENTS**

Height without Shoes	Chest	
	Breadth when fully expanded	Range of expansion not less than
<i>Millimetres</i>	<i>Millimetres</i>	<i>Millimetres</i>
1626 and under 1651	851	51
1651 and under 1727	864	51
1727 and under 1778	876	51
1778 and under 1829	890	51
1829 and upwards	902	51

7. The candidate's height will be measured as follows :—

He/She will remove his/her shoes and be placed against the standard with his/her feet together and the weight thrown on the heels, and not on the toes or outer sides of the feet. He/She will stand erect without rigidity and with the heels, calves, buttocks and shoulders touching the standard; the chin will be depressed to bring the vertex of the head level under the horizontal bar and the height will be recorded in millimetres.

8. The candidate's chest will be measured as follows :—

He/She will be made to stand erect with his/her feet together and to raise his/her arms over his/her head. The tape will be so adjusted round the chest that its upper edge touches the interior angles of the shoulder blades behind and lies in the same horizontal plane when the tape is taken round the chest. The arms will then be lowered to hang loosely by the side and care will be taken that the shoulders are not thrown upward or backwards so as to displace the tape. The candidate will then be directed to take a deep aspiration several times and the maximum expansion of the chest will be carefully noted and the minimum and maximum will then be recorded in millimetres 838—890, 864—927, etc. In recording the measurements fractions of less than 13 millimetres should not be noted.

9. The candidate will also be weighed and his/her weight recorded in kilograms. Fractions of a kilogram should not be noted.

10. The candidate's eye sight will be tested in accordance with the following rules. The result of each test will be recorded :—

(i) *General*—The candidate's eyes will be submitted to a general examination directed to the detection of any disease of abnormality. The candidate will be rejected if he/she suffers from any squint or morbid conditions of eyes, eyelids or contiguous structures, or such a sort as to render, or to be likely at a future date to render him/her unfit for service.

(ii) *Visual Acuity*.— The examination for determining the acuteness of vision includes two tests—one for distant, the other for near vision. Each eye will be examined separately.

#### 1. POLICE

11. The Army test types will be used for the test for distant vision without glasses at a distance of 6096 millimetres and for the test for near vision, without glasses, at any distance selected by the candidate.

12. No candidate will be considered fit for the service whose Visual Acuity falls below the following standards :—

##### **Standard I**

Right eye	Left eye
Distant vision V. 6/6	V. 6/6
Near vision—Reads 0.6	Reads 0.6

##### **Standard II**

Better eye	Worse eye
Distant vision, V. 6/6	V, without glasses, not below 6/60 and after correction with glasses not below 6/24.
Near vision—Reads 0.6	Reads 1.

##### **Standard III**

Better eye	Worse eye
Distant vision—V, without glasses :— not below 6/60 and after correction with glasses—Not below 6/6.	V, without glasses, not below 6/60 and after correction with glasses—not below 6/24.
Near vision—Reads 0.8	Reads 1.

13. No relaxation of the standards of vision will be allowed.

(a) Each eye will be examined separately and the lids must be kept wide open during the test.

## II. RAILWAYS

14. No candidate will be accepted whose Visual Acuity falls below the following standards :—

	Better eye	Worse eye
Distant vision without glasses . . . . .	6/12	6/19
Corrected with glasses . . . . .	6/6	6/9
Near vision with or without glasses . . . . .	0.6	0.6

Colour perception, night blindness and field vision :

15. The candidates will be examined, with the apparatus and according to the methods prescribed by the Railway Board's Standing Advisory Committee of Medical Officers. Any defect of colour perception or in regard to field vision will be a cause for rejection of the candidate. The candidate under the condition of ordinary test for Visual Acuity having 6/6 vision with both eyes open with or without glasses, will be rejected, if, under the conditions of the Night Blindness Test his/her vision with both eyes open, with or without glasses; falls below 6/24.

## III. OTHERS

16. Snellen's test types will be used for the test for distant vision, without glasses at a distance of 6096 millimetres, and for the test for near vision, without glasses, at any distance selected by the candidate.

17. No candidate will be accepted whose Visual Acuity falls below the following standard :—

	Better eye	Worse eye
Distant vision without glasses . . . . .	*6/24	*6/24
Corrected with glasses . . . . .	6/6	6/12
Near vision with or without glasses . . . . .	0.8	1

\* Temporarily lowered to 6/60.

18. Colour perception, night blindness and field of vision :

- (a) Each eye will be examined separately and the lids must be kept wide open during the test.
- (b) Inability to distinguish the principal colours will not be regarded as a cause for rejection but the fact will be noted in the proceedings and the candidates will be informed.
- (c) Each eye must have full field of vision as tested by hand movements.

19. The degree of acuteness of vision of all candidates for appointment will be entered in the proceedings in the manner :—

V.P. .... with glasses ..... Reads  
 V.L. .... with glasses ..... Reads

20. In cases of serious abnormality the opinion of an ophthalmic specialist should be obtained.

21. No candidate will be accepted for appointment if his/her vision does not come up to the requirements specified above without the use of contact glasses. (A contact glass or lens is defined as a glass shell, the concavity of which is in contact with the globe of the eye, a layer of liquid being interposed between the lens and the cornea. The meaning of the word "glasses" wherever used above is to be interpreted as not covering contact glasses.)

22. The urine (passed in the presence of the examiner) should be examined and the result recorded.

23. The following additional points should be observed :—

- (a) that the candidate's hearing in each ear is good and that there is no sign of disease of the ear ;
- (b) that the candidate's speech is without impediment ;
- (c) that the candidate's teeth are in good order and that he/she is provided with dentures where necessary for effective mastication (well-filled teeth will be considered as sound). Candidates for the Police Service of Pakistan must have 10 sound teeth in the upper jaw, functionally opposed to 10 sound teeth in the lower jaw. Two of these teeth in each jaw must be molars. Well-filled teeth will be considered as sound ;
- (d) that the candidate's chest is well-formed and his/her chest expansion sufficient; and that his/her heart and lungs are sound ;
- (e) that there is no evidence of any abdominal disease ;
- (f) that the candidate is not ruptured ;
- (g) that the candidate does not suffer from hydrocel, a severe degree of varicocele, varicose veins or polyps. A candidate for the Police Service of Pakistan who has been successfully operated on will be accepted ;
- (h) that the candidate's limbs, hands and feet are well formed and developed and that there is no shortening of any limbs and that there is free and perfect motion of all his joints ;
- (i) that the candidate does not suffer from any inveterate skin disease ;
- (j) that there is no congenital malformation or defect ;
- (k) that the candidate does not bear traces of acute or chronic disease pointing to an impaired constitution ;
- (l) that the candidate bears marks of efficient vaccination ; or in the case of the Police Service of Pakistan he has been vaccinated (twice unsuccessfully) within the last five years.

(In support of this the candidates will be required to produce certificate signed by a Medical Officer); and

- (m) that the candidate is free from communicable disease.

24. When any defect is found it must be noted in the certificate and the medical examiner should state his opinion whether or not it is likely to interfere with the efficient performance of the duties which will be required of the candidate if the condition is remediable by operation it should be so stated.

**25. If a candidate is declared medically unfit by the Central Medical Board, he/she will be informed by the Federal Public Service Commission that he/she has been declared medically unfit. The candidate will also be informed of the particular defect or defects for which he/she has been declared medically unfit. The candidate may prefer an appeal against the decision of the Central Medical Board to the Federal Public Service Commission, Islamabad, within 14 days of the receipt of the information. The appeal must be supported by two certificates from the doctors of standing stating *inter alia* that :—**

(a) They are in full knowledge of the facts that the candidate has been examined by the Central Medical Board and declared unfit; and

(b) That they have read the Rules and Regulations for physical fitness required of the candidates for the Competitive Examination.

**26. Government, however, reserve the right to deal with the appeal as they deem fit and do not bind themselves to constitute a second Medical Board for the medical examination of the candidate concerned. No further appeal shall be entertained against the decision of the Appellate Board and the case shall be treated as closed.**

*Note:* This issues with the approval of the Government.