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<th>S. No</th>
<th>Case No.</th>
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<th>Qualifications for Posts</th>
<th>Test Specification</th>
<th>Topics of Syllabi</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>192/2018</td>
<td><strong>Assistant Director</strong> (MIS) (BS-17), Federal Board of Revenue, Revenue Division.</td>
<td>Second Class or Grade ‘C’ Master’s Degree in Computer Science/ Information Technology or equivalent from a University recognized by HEC. <strong>OR</strong> Second Class or Grade ‘C’ Bachelor’s Degree in Computer Science/ BIT (4 year’s duration) or equivalent from a University recognized by HEC.</td>
<td><strong>Part-I</strong> Objective Type Test (MCQ) <strong>Part-II</strong> English = 20 marks</td>
<td><strong>Part-I</strong> Vocabulary, Grammar Usage, Sentence Structuring. <strong>Part-II</strong> • Computer Hardware &amp; Software, • Data Communication &amp; Networking, • C/C++ Language, • Visual Basic, • Relational Database Management System (RDBMS), • Operating System Unix/Linux • Oracle/PLSQL.</td>
</tr>
<tr>
<td>2.</td>
<td>219/2018</td>
<td><strong>Assistant Private Secretary</strong> (BS-16), Directorate General, Pakistan Post Office, Ministry of Communication</td>
<td>i. Second Class or Grade ‘C’ Bachelor’s degree from a University recognized by HEC. ii. Minimum shorthand speed: 100 w.p.m. and typing speed: 50 w.p.m. iii. Must be computer literate. <strong>Note:</strong> Computer literacy means proficiency in M.S Office (M.S Word, Power Point &amp; Excel).</td>
<td>• Typing Test with minimum Speed of 50 W.P.M 35 Marks • Shorthand Test with minimum Speed of 100 W.P.M 35 Marks • Computer Literacy Test: i. Microsoft Word (Typing, Formatting) 10 Marks ii. Microsoft Excel (Typing, Graph, Calculations) 10 Marks iii. Microsoft Power Point (Typing, Formatting, Inserting Objects) 10 Marks</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>221/2018</td>
<td><strong>Senior Auditor</strong> (BS-16), Pakistan Audit Department, Office of the Auditor General of Pakistan.</td>
<td>Second Class or Grade ‘C’ Bachelor’s Degree in Business Administration (Finance/ Accounting)/ Commerce/ Economics/ Statistics/ Mathematics or equivalent from a University recognized by HEC. <strong>OR</strong> Second Class or Grade ‘C’ Bachelor’s Degree with ICMA one year post graduate Certificate or CA (Foundation) or ACCA (knowledge level qualified)</td>
<td><strong>Part-I</strong> Objective Type Test (MCQ) <strong>Part-II</strong> Professional Test=80 Marks</td>
<td><strong>Part-I</strong> Grammar Usage, Sentence Structuring <strong>Part-II</strong> • Accounting Principles &amp; Procedures, • Scrutiny of Record for Audit Purposes, • Journal, Ledger &amp; Cash Book, • Financial Planning &amp; Cost Accounting, • Heads of Account, Re-appropriation of Funds and Supplementary Grant, • Procedure for settlement of Audit Objections • Public Procurement Rules, 2004</td>
</tr>
<tr>
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</tr>
</tbody>
</table>
| 4.    | 222/2018 | **Drug Inspector** (BS-17 plus 25% special pay), Drug Control Administration, Health Department, Gilgit Baltistan, Ministry of Kashmir Affairs and Gilgit Baltistan. | i. Second Class or Grade ‘C’ Master’s Degree in Pharmacy recognized by Pharmacy Council of Pakistan.  
ii. Two (2) years post qualification experience in Pharmaceutical field. **OR**  
i. Second Class or Grade ‘C’ basic degree in Pharmacy recognized by Pharmacy Council of Pakistan.  
ii. Four (4) years post qualification experience in Pharmaceutical field. | Objective Type Test (MCQ)  
**Part-I**  
English = 20 marks  
**Part-II**  
Professional Test=80 marks | Part-I  
Vocabulary, Grammar Usage, Sentence Structuring  
Part-II  
- Physical Pharmacy,  
- Hospital Pharmacy,  
- Pharmaceutical Chemistry,  
- Pharmaceutical Quality Control & Management,  
- Physiology & Histology,  
- Application of Computer in Pharmacy. |
| 5.    | 223/2018 | **Deputy Assistant Solicitor** (BS-17), Ministry of Law and Justice. | i. Bachelors Degree in Law or equivalent.  
ii. Two (2) years post qualification experience of work in Judicial or Legal appointment or practice as an Advocate in a court of law after enrolment as practicing lawyer excluding attachment period. | Objective Type Test (MCQ)  
**Part-I**  
English = 20 marks  
**Part-II**  
Professional Test=80 marks | Part-I  
Vocabulary, Grammar Usage, Sentence Structuring  
Part-II  
- Code of Civil Procedure,  
- Code of Criminal Procedure,  
- Pakistan Penal Code,  
- Specific Relief Act. |
| 6.    | 224/2018 | **Inspector** (BS-16), Bureau of Emigration & Overseas Employment, Ministry of Overseas Pakistanis & Human Resource Development. | i. Second Class or Grade ‘C’ Bachelor’s degree from a University recognized by HEC. Three (3) years post qualification experience in Labour/ Manpower and Overseas Employment Service/ Technical or Vocational Training/ Planning/ Economic Development. | Objective Type Test (MCQ)  
**Part-I**  
English = 20 marks  
**Part-II**  
Professional Test=80 marks | Part-I  
Grammar Usage, Sentence Structuring  
Part-II  
- International Migration Convention 2003  
- Role of remittances and Impact of Immigrants in Pakistani Economy  
- Emigration Ordinance and Rules, 1979  
- Issues of Pakistani Migrant Workers |
<table>
<thead>
<tr>
<th>S. No</th>
<th>Case No.</th>
<th>Particulars of Post(s)</th>
<th>Qualifications for Posts</th>
<th>Test Specification</th>
<th>Topics of Syllabi</th>
</tr>
</thead>
</table>
| 7.    | 225/2018 | **Sub Divisional Forest Officer** (BS-17 Plus 25% Special Pay), Forest, Parks & Wildlife Department, Gilgit Baltistan, Ministry of Kashmir Affairs and Gilgit Baltistan. | i. M.Sc. Degree in Forestry. ii. Two (2) years post qualification experience in the relevant field. | Objective Type Test (MCQ)  
**Part-I**  
English = 20 marks  
**Part-II**  
Professional Test = 80 marks | Part-I  
Vocabulary, Grammar Usage, Sentence Structuring  
Part-II  
- Forest Management  
- Range Management  
- Watershed Management  
- The Gilgit Forest Rules 1932  
- Forest Types: Pakistan and Gilgit-Baltistan  
- Forest Biometrics |
| 8.    | 228/2018 | **Prosthetics & Orthotist** (BS-17), Armed Forces Institute of Rehabilitation Medicine, Ministry of Defence. | i. B.Sc. in Orthopedic Technology from a University recognized by HEC. ii. Three (3) years post qualification experience as Prosthetics and Orthotist in a Government Organization. | Objective Type Test (MCQ)  
**Part-I**  
English = 20 marks  
**Part-II**  
Professional Test = 80 marks | Part-I  
Vocabulary, Grammar Usage, Sentence Structuring  
Part-II  
- CAD/CAM Prosthetics & Orthotics  
- Mayo Electric Upper Limbs  
- Internal Sockets Pressure Measurements  
- High Tech Prosthetic Designing  
- High Tech Orthotics  
- Hydraulic and Microprocessor Knees  
- Reciprocating Gait Orthosis  
- CAD/CAM Insole Designing  
- Assistive Aids |
| 9.    | 229/2018 | **Trained Graduate Teacher (Female)** (BS-16 Plus 25% Special Pay), Education Department, Gilgit Baltistan, Ministry of Kashmir Affairs and Gilgit Baltistan. | Second Class or Grade ‘C’ Bachelor’s Degree with B.Ed. or equivalent qualification from a university recognized by the HEC. | Objective Type Test (MCQ)  
**Part-I**  
English = 20 marks  
**Part-II**  
General Intelligence Test = 40 marks  
**Part-III**  
Professional Test = 40 marks | Part-I  
Grammar Usage, Sentence Structuring  
Part-II  
- Basic Arithmetic.  
- Current Affairs.  
- Pakistan Affairs & Islamic Studies  
- Everyday/General Science  
Part-III  
- Education System in Pakistan,  
- Class Room Management and Discipline,  
- Instructional Planning and Teaching Strategies,  
- Students Evaluation and Examination System,  
- Assisstive Aids |
<table>
<thead>
<tr>
<th>S. No</th>
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</tr>
</thead>
<tbody>
<tr>
<td>11.</td>
<td>234/2018</td>
<td><strong>Administrative Officer</strong> (BS-17), Pakistan Meteorological Department, Cabinet Secretariat (Aviation Division).</td>
<td>i. Second Class or Grade ‘C’ Master’s Degree from a University recognized by the HEC. ii. Two (2) years post qualification experience in Admin./ Establishment/ Recruitment of Personnel/ Budget &amp; Accounts.</td>
<td>Objective Type Test (MCQ) <strong>Part-I</strong> English = 20 marks <strong>Part-II</strong> Professional Test=80 marks</td>
<td><strong>Part-I</strong> Vocabulary, Grammar Usage, Sentence Structuring <strong>Part-II</strong> Human Resource Management Civil Servants Act, 1973 and Rules made thereunder Rules of Business, 1973 New System of Financial Control and Budgeting Public Procurement Rules, 2004 Basic Arithmetic. Basic knowledge of Computer/IT.</td>
</tr>
<tr>
<td>12.</td>
<td>236/2018</td>
<td><strong>Assistant Meteorologist</strong> (BS-16), Pakistan Meteorological Department, Cabinet Secretariat (Aviation Division).</td>
<td>Second Class or Grade ‘C’ B.Sc. Degree in Physics/Mathematics/ Space Science/Geology/ Meteorology/ Environment from a University recognized by the HEC.</td>
<td>Objective Type Test (MCQ) <strong>Part-I</strong> English = 20 marks <strong>Part-II</strong> Professional Test=80 marks</td>
<td><strong>Part-I</strong> Grammar Usage, Sentence Structuring <strong>Part-II</strong> Meteorology Climatology Basics of Physics Environmental Studies Basic Mathematics Basic Geology</td>
</tr>
<tr>
<td>S. No</td>
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</tbody>
</table>
| 13.   | 240/2018 | **Assistant Naval Store Officer** (BS-16), Naval Headquarters, Ministry of Defence. | i. Second Class or Grade ‘C’ Bachelor’s Degree.  
ii. Three (3) years post qualification experience in Store Management.  
OR  
i. Ex-Chief Petty Officers (CPOs)/ Petty Officers (POs).  
ii. Matriculation or Higher Education Test (HET).  
iii. Five (5) years post qualification experience in Store Management. | **Objective Type Test (MCQ)**  
**Part-I**  
English = 20 marks  
**Part-II**  
General Intelligence/ Professional Test=80 marks | **Part-I**  
Grammar Usage, Sentence Structuring  
**Part-II**  
- General Science  
- Basic knowledge of I.T  
- Procedures of Receipt and Issue of Stores  
- Stores procedures with relation to following topics:-  
a. Stock Taking  
b. Care and preservation of Equipments and Stores  
c. Ware House Management  
- Public Procurement Rules, 2004 |
| 14.   | 241/2018 | **Administrative Officer** (BS-16), Naval Headquarters, Ministry of Defence. | i. Second Class or Grade ‘C’ Bachelor’s Degree with Business Administration  
ii. Three (3) years post qualification experience in Establishment/ Budget and Accounts/ Estate matters. | **Objective Type Test (MCQ)**  
**Part-I**  
English = 20 marks  
**Part-II**  
Professional Test=80 marks | **Part-I**  
Grammar Usage, Sentence Structuring  
**Part-II**  
- Human Resource Management  
- Civil Servants Act, 1973 and Rules made thereunder  
- Rules of Business, 1973  
- System of Financial Control and Budgeting  
- Public Procurement Rules, 2004  
- Basic Arithmetic,  
- Basic knowledge of Computer/IT. |
| 15.   | 242/2018 | **Experimental Officer** (BS-16), Naval Headquarters, Ministry of Defence. | i. Second Class or Grade ‘C’ Bachelor’s Degree in Science with Chemistry or Chemical Technology.  
ii. Three (3) years post qualification experience in the field of prescribed qualification. | **Objective Type Test (MCQ)**  
**Part-I**  
English = 20 marks  
**Part-II**  
Professional Test=80 marks | **Part-I**  
Grammar Usage, Sentence Structuring  
**Part-II**  
- Kinetic Theory of Gases.  
- Chemical Kinetics.  
- Thermodynamics.  
- Thermo-chemistry.  
- Radioactivity  
- Electrochemistry including Fuel Cells; Chemical Equilibria and Catalysis. |
<table>
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<tr>
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<tbody>
<tr>
<td>16.</td>
<td>247/2018</td>
<td>Research Officer (BS-17), Devolution &amp; Area Development (Rural Development and Local Planning Section), Ministry of Planning, Development and Reform.</td>
<td>Second Class or Grade ‘C’ Master’s Degree or equivalent qualifications in Agricultural Economics/ Economics/ Social Work/ Sociology/ Rural Development. OR Bachelor’s Degree or equivalent qualifications in Civil Engineering or Agricultural Engineering.</td>
<td>Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test=80 marks</td>
<td>Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II • Meaning of Development and its Philosophy. • Determinants of Rural Development. • Approaches to rural development. • Socio-cultural obstacles to rural development. • Rural development program and policies in Pakistan. • Research and Analysis • Report Writing</td>
</tr>
<tr>
<td>17.</td>
<td>248/2018</td>
<td>Research Officer (BS-17), Mass Media &amp; Culture Sports Tourism and Youth Section (CSTY), Ministry of Planning, Development and Reform.</td>
<td>Second Class or Grade ‘C’ Master’s Degree or equivalent qualifications in any of the following subjects: Literature, Humanities, Journalism, Business Administration, Public Administration, Library Science.</td>
<td>Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test=80 marks</td>
<td>Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II • Definition of Mass Communication &amp; Mass Media • Mass Media in Pakistan • Basics about Advertising &amp; Public Relations • Fundamentals of News Reporting • Research Methodology</td>
</tr>
<tr>
<td>18.</td>
<td>251/2018</td>
<td>Assistant Private Secretary (BS-16), Ministry of Statistics, Statistics Division.</td>
<td>i. Second Class or Grade ‘C’ Bachelor’s degree from a University recognized by HEC. ii. Minimum shorthand speed: 100 w.p.m. and typing speed: 50 w.p.m. iii. Must be computer literate. <strong>Note:</strong> Computer literacy means proficiency in M.S Office (M.S Word, Power Point &amp; Excel).</td>
<td>Typing Test with minimum Speed of 50 W.P.M 35 Marks Shorthand Test with minimum Speed of 100 W.P.M 35 Marks Computer Literacy Test: i Microsoft Word (Typing, Formatting) 10 Marks ii Microsoft Excel (Typing, Graph, Calculations) 10 Marks iii Microsoft Power Point (Typing, Formatting, Inserting Objects) 10 Marks</td>
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<td>19.</td>
<td>252/2018</td>
<td><strong>Assistant Manager IT</strong> (BS-17), Intelligence Bureau.</td>
<td>i. Second Class or Grade ‘C’ Master’s degree or equivalent in Computer Science. OR Second Class or Grade ‘C’ Bachelor’s degree in Software Engineering or System Engineering/Computer Engineering. ii. Certification in MTA (Microsoft Technology Associate) OR CCNA (CISCO Certified Network Associate) OR RHCSA (Red Hat Certified System Administrator) OR The officer will be required to qualify certification in either of the above during probation period.</td>
<td>Objective Type Test (MCQ)</td>
<td><strong>Part-I</strong> Vocabulary, Grammar Usage, Sentence Structuring. <strong>Part-II</strong> • Computer Hardware &amp; Software, • Data Communication &amp; Networking, • C/C++ Language, • Visual Basic, • Relational Database Management System (RDBMS), • Operating System Unix/Linux • Oracle/PLSQL,</td>
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<td><strong>Part-I</strong> English = 20 marks</td>
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<td><strong>Part-II</strong> Professional Test = 80 marks</td>
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<td>For Preselected Candidates</td>
<td>Syllabus of Subjective Type IT Proficiency Test of 100 marks is available at Page 9-10.</td>
</tr>
</tbody>
</table>

<p>| 20.   | 253/2018 | <strong>Assistant Director</strong> (BS-17), Geological Survey of Pakistan, Petroleum Division, Ministry of Energy. | Second Class or Grade ‘C’ M.Sc. degree in Geology or equivalent qualification from a University recognized by the HEC. | Objective Type Test (MCQ) | <strong>Part-I</strong> Vocabulary, Grammar Usage, Sentence Structuring. <strong>Part-II</strong> • Introduction to Physical Geology • Stratigraphy • Structural Geology • Plate Tectonics • Palaeontology (Invertebrate &amp; Vertebrate) • Geological Mapping • Engineering and Environmental Geology |
|       |          |                        |                          | <strong>Part-I</strong> English = 20 marks |                  |
|       |          |                        |                          | <strong>Part-II</strong> Professional Test=80 marks |                  |</p>
<table>
<thead>
<tr>
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</thead>
</table>
| 21.   | 254/2018 | Inspector (BS-16), Anti Narcotics Force, (Narcotics Control Division) Ministry of Narcotics Control. | i. Second Class or Grade ‘C’ Bachelor’s Degree or equivalent qualification recognized by HEC.  
ii. Two (2) years post qualification experience in Law Enforcement Agency/ Security Agency. | Objective Type Test (MCQ)  
*Part-I*  
English = 20 marks  
*Part-II*  
Professional Test=80 marks | Part-I  
Grammar Usage, Sentence Structuring  
*Part-II*  
- Basic knowledge of Narcotics Substances Act, 1997  
- International Conventions and Agreements on Drug Control.  
- Role of United Nations Organization for Drug Control (UNODC)  
- Role of Pakistan’s Anti Narcotics Control Setup in Drug Control  
- Sources of Terrorist Financing |
| 22.   | 259/2018 | Inspector (Investigation) (BS-16), Federal Investigation Agency, Ministry of Interior. | Second Class or Grade ‘C’ Bachelor’s degree from a University recognized by the HEC. | Objective Type Test (MCQ)  
*Part-I*  
English = 20 marks  
*Part-II*  
General Intelligence Test = 80 marks | Part-I  
Grammar Usage, Sentence Structuring.  
*Part-II*  
- Basic Arithmetic.  
- Current Affairs.  
- Pakistan Affairs & Islamic Studies  
- Everyday/General Science  
*Note : (Equal weightage for each topic at Part-II)* |
| 23.   | 260/2018 | Assistant Director (Legal) (BS-17), Federal Investigation Agency, Ministry of Interior. | i. Second Class or Grade ‘C’ LLB degree from a University recognized by HEC.  
ii. Two (2) years post qualification experience of legal practice/prosecution working in legal field. | Objective Type Test (MCQ)  
*Part-I*  
English = 20 marks  
*Part-II*  
Professional Test=80 marks | Part-I  
Vocabulary, Grammar Usage, Sentence Structuring.  
*Part-II*  
- Basic knowledge of Criminal Procedure Code,  
- Basic knowledge of “Qanun-e-Shahadat Order”, 1984  
- Basic knowledge of Pakistan Penal Code,  
- FIA Act, 1974 |
| 24.   | 261/2018 | Assistant Director (Investigation) (BS-17), Federal Investigation Agency, Ministry of Interior. | Second Class or Grade ‘C’ Master’s degree from a University recognized by the HEC. | Objective Type Test (MCQ)  
*Part-I*  
English = 20 marks  
*Part-II*  
General Intelligence/ Professional Test = 80 marks | Part-I  
Vocabulary, Grammar Usage, Sentence Structuring.  
*Part-II*  
- Basic Arithmetic.  
- Current Affairs.  
- Pakistan Affairs & Islamic Studies  
- Everyday/General Science  
- FIA Act, 1974  
*Note : (Equal weightage for each topic at Part-II)* |
SUBJECTIVE TYPE IT PROFICIENCY TEST

Max Marks: 100  Qualifying Standard 50%  Time Allowed: 3 Hours

Case No. F.4-252/2018-R

Particulars of post Assistant Manager IT (BS-17) in a Federal Government Organization.

Minimum Qualification & Experience:

i. Second Class or Grade ‘C’ Master’s degree or equivalent in Computer Science. OR Second Class or Grade ‘C’ Bachelor’s degree in Software Engineering or System Engineering/ Computer Engineering.

ii. Certification in MTA (Microsoft Technology Associate) OR CCNA (CISCO Certified Network Associate) OR RHCSA (Red Hat Certified System Administrator) OR The officer will be required to qualify certification in either of the above during probation period.

I. Introduction to Computing


II. Computer Communications & Networks

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

III. Database Systems

IV. Operating Systems & Web


SUGGESTED READINGS

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Title</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Computer System Architecture</td>
<td>M. Morris Mano</td>
</tr>
<tr>
<td>2.</td>
<td>Software Engineering</td>
<td>Ian Sommerville</td>
</tr>
<tr>
<td>4.</td>
<td>Data and Computer Communications</td>
<td>William Stallings</td>
</tr>
<tr>
<td>5.</td>
<td>Database Systems Concepts</td>
<td>Silberchatz, Abraham &amp; Korth, Sudarshan</td>
</tr>
<tr>
<td>6.</td>
<td>Computer Networks</td>
<td>Andrew Tanenbaum</td>
</tr>
<tr>
<td>7.</td>
<td>Web Services: Principles and Technology</td>
<td>Michael Papazoglu</td>
</tr>
</tbody>
</table>
Schemes and Syllabi for Written Examination (Descriptive) 
for All Posts in BS-18 & BS-19 included in Consolidated 
Advertisement No. 11/2018

PAPER-I: ENGLISH

Max Marks: 100 Time Allowed: 3 Hours

(i) **English Essay-50 Marks:** Candidates will be required to write an Essay in English comprising 1500 words from a set of six given topics. Candidates are expected to reflect comprehensive and research based knowledge on a selected topic. Candidate’s articulation, expression and technical approach to the style of English Essay writing will be examined.

(ii) **English (Composition and Précis)-50 Marks:**

The examination will test the candidate’s abilities to handle Précis Writing, Reading Comprehension, Sentence Structuring, Translation, Grammar and Vocabulary, etc.

**Précis Writing (10 marks):** A selected passage with an orientation of generic understanding and enough flexibility for compression shall be given for précising and suggesting an appropriate title.

**Reading Comprehension (10 marks)**
A selected passage that is rich in substance but not very technical or discipline-specific shall be given, followed by five questions, each carrying 2 marks.

**Grammar and Vocabulary (10 marks):** Correct usage of Tense, Articles, Prepositions, Conjunctions, Punctuation, Phrasal Verbs, Synonyms and Antonyms etc.

**Sentence Correction (5 marks):** Ten sentences shall be given each having a clear structural flaw in terms of grammar or punctuation. The candidates shall be asked to rewrite them with really needed correction only, without marking unnecessary alterations. No two or more sentences should have exactly the same problem, and 2-3 sentences shall be based on correction of punctuation marks.

**Grouping of Words (5 marks):** A random list of ten words of moderate standard (neither very easy nor utterly unfamiliar) shall be given, to be grouped by the candidates in pairs of those having similar or opposite meaning, as may be clearly directed in the question.

**Pairs of Words (5 marks):** Five pairs shall be given of seemingly similar words with different meanings, generally confused in communication, for bringing out the difference in meaning of any five of them by first explaining them in parenthesis and then using them in sentences.

**Translation (5 marks):** Ten short Urdu sentences involving structural composition, significant terms and figurative/idiomatic expressions shall be given, to be accurately translated in English.

**SUGGESTED READINGS**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Title</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>English Grammar in Use</td>
<td>Raymond Murphy (Cambridge University Press)</td>
</tr>
<tr>
<td>2.</td>
<td>Practical English Usage</td>
<td>M. Swan (Oxford University Press)</td>
</tr>
<tr>
<td>4.</td>
<td>A University English Grammar</td>
<td>R. Quirk &amp; S. Greenbaum (ELBS; Longmans)</td>
</tr>
<tr>
<td>5.</td>
<td>Write Better, Speak Better</td>
<td>Readers Digest Association</td>
</tr>
<tr>
<td>Case No.</td>
<td>F.4-165/2018-R</td>
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<tr>
<td>Particulars of post</td>
<td><strong>District Health Officer</strong> (BS-18 Plus 25% Special Pay), Health Department, Gilgit Baltistan, Ministry of Kashmir Affairs and Gilgit Baltistan.</td>
<td></td>
</tr>
<tr>
<td>Minimum Qualification &amp; Experience:</td>
<td>i. MBBS/BDS or equivalent qualification recognized by Pakistan Medical and Dental Council. ii. Postgraduate higher Diploma in Public Health/ Health Services Administration/ Hospital Administration recognized by Pakistan Medical and Dental Council with one (1) year post qualification experience in any of the above fields. <strong>OR</strong> Postgraduate Lower Diploma in Public Health/ Health Services Administration/ Hospital Administration recognized by Pakistan Medical and Dental Council with three (3) years post qualification experience in any of the above fields.</td>
<td></td>
</tr>
</tbody>
</table>

**Part-I: (Qualification Based)  50 Marks**

Core courses of **MBBS/BDS Degree**

**Part-II: (Professional)  50 Marks**

Core courses of Post Graduate Lower Diploma in **Public Health/ Health Services Administration/ Hospital Administration.**
Veterinary Medicine: 100 Marks

I. Veterinary Protozoology
Protozoology: definition, history and differences from other unicellular organisms, Anatomy and physiology of protozoa, Classification, Morphology, Life cycle, Pathogenesis, Diagnosis and Control of the species of the following genera of Protozoa, Trypanosoma / Leshmania, Trichomonias and Histomonas, Entamoeba, Giardia and Balantidium, Eimeria and Isospora, Toxoplasma and Sarcocystis, Toxoplasmosis and Sarcocystosis and Plasmodium, Plasmodium, Haemoproteus, Leucocytozoan and Hepatozoan, Babesia, Theileria, Anaplasma & Cryptosporidium, Ehrlichia & Eperythrozoan, Protozoan zoonosis.

II. Systemic Veterinary Pathology
Digestive system, Skin and Appendages, Dermatophytes (Ring Worms), Mange: Psoroptic, chorioptic mange, neoplasia, Urinary system, Cardiovascular system, Nervous system, Respiratory system, Musculo-skeleton system, Rickets, Osteomalacia, Osteodystrophy, Osteoporosis, Osteopetrosis, Exostoses, neoplasia, Reproductive System, Postparturient Haemoglobinuria,

III. Small Ruminant Production
Scope and role of small ruminants, Sheep and goat as milk, meat and wool/hair producer. Grazing management systems and supplementary feeding, Management during drought, Record keeping of sheep and goat, Fencing on ranges, Shearing and handling wool/hair,

IV. Ruminant Nutrition
Nutrients, their classification and requirements, Concept of forage, concentrate and non-conventional feed resources in feeding of ruminants, Feeding standards, their usefulness and limitations for large ruminants. Feeding standards, their usefulness and limitations for small ruminants. Nutrient requirements of cattle for maintenance, production and reproduction. Nutrient requirements of buffaloes for maintenance, production and reproduction. Nutrient requirements of sheep for maintenance, production and reproduction, Nutrient requirements of beef animals for maintenance and fattening. Concept of digestibility and nitrogen balance. Feeding management of dairy animals at different physiological stages, Feeding practices of small ruminants, Nutritional management of grazing livestock, Feeding of calves from birth to puberty.
V. Beef Production


<table>
<thead>
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**Veterinary Medicine: 100 Marks**

**I. Veterinary Protozoology**
Protozoology: definition, history and differences from other unicellular organisms, Anatomy and physiology of protozoa, Classification, Morphology, Life cycle, Pathogenesis, Diagnosis and Control of the species of the following genera of Protozoa, Trypanosoma / Leshmania, Trichomonias and Histomonas, Entamoeba, Giardia and Balantidium, Eimeria and Isospora, Toxoplasma and Sarcocystis, Toxoplasmosis and Sarcocystosis and Plasmodium, Plasmodium, Haemoproteus, Leucocytozoan and Hepatozoan, Babesia, Theileria, Anaplasma & Cryptosporidium, Ehrlichia & Eperythrozoan, Protozoan zoonosis.

**II. Systemic Veterinary Pathology**
Digestive system, Skin and Appendages, Dermatophytes (Ring Worms), Mange: Psoroptic, chorioptic mange, neoplasia, Urinary system, Cardiovascular system, Nervous system, Respiratory system, Musculo-skeleton system, Rickets, Osteomalacia, Osteodystrophy, Osteoporosis, Osteopetrosis, Exostoses, neoplasia, Reproductive System, Postparturient Haemoglobinuria,

**III. Small Ruminant Production**
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V. Beef Production


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## Part-I: (Qualification Based)  50 Marks

Core courses of **MBBS Degree**

## Part-II: (Professional)  50 Marks

Core courses of FCPS in **Rehabilitation Medicine**.
### Professional Test : 100 Marks

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<thead>
<tr>
<th>S. No.</th>
<th>Detail of Topics</th>
<th>Marks</th>
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<tbody>
<tr>
<td>1.</td>
<td>Urdu Typing Test on Inpage with minimum speed of 40 w.p.m with 90% Accuracy</td>
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<td>2.</td>
<td>Urdu Shorthand Test with minimum speed of 100 w.p.m</td>
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<td>Computer Literacy Test: (30 Marks)</td>
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<td>i. In-page (Typing, Formatting)</td>
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<td></td>
<td>ii. Microsoft Excel (Typing, Calculation and Graphic)</td>
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<td>iii. Microsoft Power Point (Typing, Formatting, Inserting Objects)</td>
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**PAPER-II: PROFESSIONAL**

Max Marks: 100  
Time Allowed: 3 Hours

<table>
<thead>
<tr>
<th>Case No.</th>
<th>F.4-218/2018-R</th>
</tr>
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</table>

**Particulars of post**  
Deputy Chief (Fuel) (BS-19), Energy Appraisal & Plan Formulation Section, Energy Wing, Ministry of Planning, Development and Reform.

**Minimum Qualification & Experience:**

i. Second Class or Grade ‘C’ Master’s Degree or equivalent qualification in Petroleum Geology or Geology with specialization in Coal Resources.  

**OR**  
Bachelor’s Degree of Engineering or equivalent qualifications in Petroleum, Gas Reservoir, Chemical, Energy, or Mining Engineering with specialization in Coal mining/technology.

ii. Ten (10) years post qualification experience in exploration of fuel and energy resources and/or production planning and designing in this field.

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**Part-I: (Research and Planning) 50 Marks**

i. **Communication Skills, Technical Writing and Presentation Skills**

Paragraph writing, Essay writing, Translation skills, Study skills, Academic skills, Academic writing, Technical Report writing, Progress report writing, Presentation skills

ii. **Planning and Management**

a) **Project Management**

Project Management, Processes Integration Management, Project Plan Development, Project Plan Execution and Overall Change Control.

b) **Scope Management**

Initiation, Scope Planning, Scope Definition, Scope Verification and Scope Change Control.

c) **Time Management**

Activity Definition, Activity Sequencing, Activity Duration Estimation, Schedule Development and Schedule Control.

d) **Communications Management**

Communications Planning, Information Distribution, Performance Reporting and Administrative Closure.

e) **Statistical Techniques**

All statistical techniques related to Planning & Research

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**Part-II: (Exploration of Fuel and Energy) 50 Marks**

i. **Petroleum Geology & Exploration**

ii. Coal Geology

SUGGESTED READINGS

<table>
<thead>
<tr>
<th>S. No.</th>
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<tbody>
<tr>
<td>4.</td>
<td>Reading. Advanced</td>
<td>Brian Tomlinson and Rod Ellis.</td>
</tr>
<tr>
<td>5.</td>
<td>Study Skills</td>
<td>Riachard Yorky</td>
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<td>7.</td>
<td>College Writing Skills</td>
<td>John Langan.</td>
</tr>
<tr>
<td>8.</td>
<td>Patterns of College Writing</td>
<td>Laurie G. Kirschner and Stephen R. Mandell.</td>
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<td>10.</td>
<td>Project Management Body of Knowledge</td>
<td>Project Management Institute (PMI) standards committee</td>
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<td>16.</td>
<td>Basic Exploration Geophysics</td>
<td>Robinson</td>
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<td>17.</td>
<td>Significance of Coal Resources of Pakistan</td>
<td>Kazmi</td>
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<td>18.</td>
<td>Sedimentology of Coal and Coal Bearing Sequences</td>
<td>Rehmani &amp; Flores</td>
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</tbody>
</table>
PAPER-II: PROFESSIONAL
Max Marks: 100 Time Allowed: 3 Hours

Case No. F.4-220/2018-R

Particulars of post
Assistant Professor (Mathematics) (Male) (BS-18), Islamabad Model Colleges for Boys, Federal Directorate of Education, Capital Administration & Development Division.

Minimum Qualification & Experience:
Ph.D. Degree in the relevant subject with one (1) year post qualification teaching experience at College/ University level.

OR

M. Phil Degree in the relevant subject with three (3) years post qualification teaching experience at College/ University level.

OR

Second Class or Grade ‘C’ Master’s Degree in the relevant subject with five (5) years post qualification teaching experience at College/ University level.

Part-I: (Mathematics) 50 Marks

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

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

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

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

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

VI. Numerical Methods
- Solution of nonlinear equations by bisection, secant and Newton-Raphson methods; the fixed-point iterative method; order of convergence of a method.
Solution of a system of linear equations; diagonally dominant systems; the Jacobi and Gauss-Seidel methods.

Numerical solution of an ordinary differential equation; Euler and modified Euler methods; Runge-Kutta methods.

Part-II: (Professional) 50 Marks

I. Development of Curriculum and Instructional Material
   - Elements of Curriculum.

II. Process of Teaching and Teaching Strategies
   - Process of Classroom Communication
   - Factors affecting Classroom Communication
   - Barriers to Classroom Communications
   - Use of Instructional Materials and Media

III. Educational Assessment and Evaluation
   - Concept of Classroom Assessment and Evaluation
   - Distinction between Assessment, Evaluation and Measurement
   - Approaches to Evaluation: Formative Evaluation; Summative Evaluation
   - Types of Test: Essay Type; Objective Type: Multiple Choice, True-False Items, Matching Type; Principles of Construction of these Test
   - Characteristics of a Good Test: Validity, Reliability, Objectivity, Usability

IV. Educational Administration and Supervision
   - The Concept of Administration
   - Educational Supervision

V. Research Methods in Education
   - Scientific Method and its Application in Education
   - Sampling Techniques:
   - Research Instruments: Questionnaire; Interview; Test; Observation; Rating Scale
   - Research Proposal and Report Writing

SUGGESTED READINGS

<table>
<thead>
<tr>
<th>S.No.</th>
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<tbody>
<tr>
<td>1</td>
<td>An Introduction to Vector Analysis</td>
<td>Khalid Latif,</td>
</tr>
<tr>
<td>2</td>
<td>Introduction to Mechanics</td>
<td>Q.K. Ghorì</td>
</tr>
<tr>
<td>3</td>
<td>An Intermediate Course in Theoretical Mechanics</td>
<td>Khalid Latif,</td>
</tr>
<tr>
<td>4</td>
<td>Differential Equations with Boundary Value Problems</td>
<td>D. G. Zill and M. R. Cullen</td>
</tr>
<tr>
<td>5</td>
<td>Elementary Differential Equations</td>
<td>E.D. Rainville, P.E. Bedient and R.E. Bedient</td>
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<td>6</td>
<td>Elements of Numerical Analysis</td>
<td>F. Ahmad and M.A Rana</td>
</tr>
<tr>
<td>7</td>
<td>Mathematical Methods</td>
<td>S. M. Yousaf, Abdul Majeed and Muhammad Amin</td>
</tr>
<tr>
<td>8</td>
<td>Research in Education</td>
<td>JW Best</td>
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<td>Integrating Education Technology into Teaching</td>
<td>Roblyer</td>
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<td>S. M. Shahid</td>
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<tr>
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<td>Educational Administration</td>
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</tr>
</tbody>
</table>
PAPER-II: PROFESSIONAL

Max Marks: 100
Time Allowed: 3 Hours

Case No. F.4-227/2018-R

### Particulars of post

**Assistant Professor (Chemistry) (BS-18), Military College Jhelum, Ministry of Defence.**

### Minimum Qualification & Experience:

- Ph. D Degree in the relevant subject with one (1) year post qualification teaching experience at College/ University level.
  
  **OR**

- M. Phil Degree in the relevant subject with three (3) year post qualification teaching experience at College/ University level
  
  **OR**

- Second Class or Grade ‘C’ Master’s Degree in the relevant subject from a University recognized by HEC with five (5) year post qualification teaching experience at College/ University level

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### Part-I: (Chemistry) 50 Marks


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

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

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


VI. 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).

VII. Surface Chemistry and Catalysis.—Physical adsorption and chemisorption. Surface area determination. Homogeneous and Heterogeneous Catalysis. Acid-base and Enzyme Catalysis.


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


Part-II: (Professional) 50 Marks

I. Development of Curriculum and Instructional Material
   - Elements of Curriculum.

II. Process of Teaching and Teaching Strategies
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   - Barriers to Classroom Communications
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IV. Educational Administration and Supervision
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   - Educational Supervision

V. Research Methods in Education
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   - Sampling Techniques:
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   - Research Proposal and Report Writing

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<tr>
<td>2.</td>
<td>Inorganic Chemistry, 3rd Ed. 1983</td>
<td>Hukeavy, James E.</td>
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<td>6.</td>
<td>Research in Education</td>
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</table>
Particulars of post
Assistant Professor (Female) (Islamic Studies) (BS-18),
Federal Government Colleges for Girls, Federal Directorate of
Education Islamabad, Capital Administration & Development
Division.

Minimum Qualification & Experience:
Ph.D. Degree in the relevant subject with one (1) year post
qualification teaching experience at College/ University level
OR
M.Phil Degree in the relevant subject with three (3) years post
qualification teaching experience at College/ University level
OR
Second Class or Grade ‘C’ Master’s Degree in the relevant
subject with five (5) years post qualification teaching experience at
College/ University level.

Part-I: (Islamic Studies) 50 Marks

I. Islam: the Code of Life
- Salient features of Islamic;
  - Social System
  - Political System
  - Economic System
  - Judicial System
  - Administrative System
- Responsibilities of Civil Servants

II. Study of Seerah
Need and importance of the study of Seerah Prophet Mohammad (PBAH) as:
- The Role Model
- Merciful for the universe.
- Preacher
- Diplomat
- Teacher and Educationist
- Revolutionary Leader

III. Islamic Civilization and Culture:
- Meanings and the vital elements of Islamic Civilization and Culture
- Role of civilisation in the development of the human personality and communities
- Distinctions of Islamic Civilization;
  - Tauheed
  - Risalat
  - Spiritualism
  - Dignity of Man
  - Equality
  - Social Justice
  - Moral values
  - Tolerance
  - Rule of Law
IV. Islam and World

- Impact of Islamic Civilization on the West and vice-versa.
- Muslim World and the Contemporary Challenges
- Interaction between East and West.
- Role of Islam in the modern world.
Part-II: (Professional) 50 Marks

I. Development of Curriculum and Instructional Material
   - Elements of Curriculum.

II. Process of Teaching and Teaching Strategies
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   - Factors affecting Classroom Communication
   - Barriers to Classroom Communications
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<tbody>
<tr>
<td>1.</td>
<td>Islam: its meaning and Message</td>
<td>Khurshid Ahmad</td>
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<td>2.</td>
<td>Islam: The Misunderstood Religion</td>
<td>Muhammad Qutub</td>
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<td>3.</td>
<td>Towards Understanding Islam</td>
<td>Abul Aala Moudoodi</td>
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<td>4.</td>
<td>Ideals and Realities of Islam</td>
<td>Hussain Nasr</td>
</tr>
<tr>
<td>5.</td>
<td>A brief Survey of Muslim Science and Culture</td>
<td>Muhammad Abdur –Rahman</td>
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<td>6.</td>
<td>Quranic Sciences</td>
<td>Afzalur Rahman</td>
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PAPER-II: PROFESSIONAL

Max Marks: 100

Time Allowed: 3 Hours

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<tbody>
<tr>
<td>Particulars of post</td>
<td>Assistant Professor (Female) (Pakistan Studies) (BS-18), Federal Government Colleges for Girls, Federal Directorate of Education Islamabad, Capital Administration &amp; Development Division</td>
</tr>
<tr>
<td>Minimum Qualification Experience: &amp; Ph.D. Degree in the relevant subject with one (1) year post qualification teaching experience at College/ University level OR M.Phil Degree in the relevant subject with three (3) years post qualification teaching experience at College/ University level OR Second Class or Grade ‘C’ Master’s Degree in the relevant subject with five (5) years post qualification teaching experience at College/ University level.</td>
<td></td>
</tr>
</tbody>
</table>

Part-I: (Pakistan Studies) 50 Marks


II. Changing Security Dynamics for Pakistan: Challenges to National Security of Pakistan

III. Pakistan War on Terror

IV. Foreign Policy of Pakistan Post 9/11

V. Evolution of Democratic System in Pakistan

VI. Hydro Politics ; Water Issues in Domestic and Regional Context

VII. Pakistan’s National Interest

VIII. Pakistan’s Energy Problems and their Effects

IX. Pakistan’s Relations with Neighbours

X. Pakistan and India Relations Since 1947

XI. Kashmir Issue

XII. The war in Afghanistan since 1979 and its impact on, and challenges to Pakistan, in the Post 2014 era.

XIII. Latest Constitutional Amendments and Important Legislations,

Part-II: (Professional)  

50 Marks

I. Development of Curriculum and Instructional Material
   - Elements of Curriculum.

II. Process of Teaching and Teaching Strategies
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<td>10.</td>
<td>Pakistan’s Energy Sector: From Crisis to Crisis-Breaking the Chain</td>
<td>Zaid Alahdad</td>
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**PAPER-II: PROFESSIONAL**

Max Marks: 100  
Time Allowed: 3 Hours

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<td>Particulars of post</td>
<td>Assistant Professor (Female) (Statistics) (BS-18), Federal Government Colleges for Girls, Federal Directorate of Education Islamabad, Capital Administration &amp; Development Division.</td>
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</tbody>
</table>
| Minimum Qualification & Experience: | Ph.D. Degree in the relevant subject with one (1) year post qualification teaching experience at College/ University level  
OR  
M.Phil Degree in the relevant subject with three (3) years post qualification teaching experience at College/ University level  
OR  
Second Class or Grade ‘C’ Master’s Degree in the relevant subject with five (5) years post qualification teaching experience at College/ University level. |

**Part-I (Statistics): 50 Marks**

I. **Probability Distributions**


II. **Regression Analysis & Correlation Analysis**

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

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

III. **Sampling & Sampling Distributions**


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

IV. **Statistical Inferences**


V. Design of Experiments

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

Part-II: (Professional) 50 Marks

I. Development of Curriculum and Instructional Material
   ▪ Elements of Curriculum.

II. Process of Teaching and Teaching Strategies
   ▪ Process of Classroom Communication
   ▪ Factors affecting Classroom Communication
   ▪ Barriers to Classroom Communications
   ▪ Use of Instructional Materials and Media

III. Educational Assessment and Evaluation
   ▪ Concept of Classroom Assessment and Evaluation
   ▪ Distinction between Assessment, Evaluation and Measurement
   ▪ Approaches to Evaluation: Formative Evaluation; Summative Evaluation
   ▪ Types of Test: Essay Type; Objective Type: Multiple Choice, True-False Items, Matching Type; Principles of Construction of these Test
   ▪ Characteristics of a Good Test: Validity, Reliability, Objectivity, Usability

IV. Educational Administration and Supervision
   ▪ The Concept of Administration
   ▪ Educational Supervision

V. Research Methods in Education
   ▪ Scientific Method and its Application in Education
   ▪ Sampling Techniques:
   ▪ Research Instruments: Questionnaire: Interview; Test; Observation; Rating Scale
   ▪ Research Proposal and Report Writing
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<th>S. No.</th>
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<tbody>
<tr>
<td>1.</td>
<td>Principles and Procedures of Statistics</td>
<td>Steel, R and Torrie, J.H.</td>
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<td>2.</td>
<td>Introduction to Statistical Theory, Part-I &amp; II</td>
<td>Chaudhry, S.M. and Kamal, S.</td>
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<td>3.</td>
<td>Fundamentals of Modern Statistical Methods</td>
<td>Wilcox, R.</td>
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<td>Statistical Methods</td>
<td>Aggarwal, Y.P.</td>
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Case No. F.4-237/2018-R

Particulars of post Vice Principal/Headmaster (Male) (BS-18), Federal Govt. Schools, Federal Directorate of Education, Islamabad, Capital Administration and Development Division.

Minimum Qualification & Experience: i. Second Class or Grade ‘C’ Master’s degree with B.Ed./M.Ed. 
ii. Five (5) years post qualification teaching and professional/administrative experience in a recognized Educational Institution.

Part-I: 50 Marks
(Human Resource, Financial Management, Quality Management and Information Technology)

I. Human Resource and Financial Management

II. Basic Concept of Quality Management
ISO-9000, ISO-13000, other certifications regarding quality measurement; management, management for Results, Setting Performance Goals and Targets; Job Analysis: Job Description, Job Specification, Performance Evaluation;

III. Information Technology and MS Office
Fundamentals of Computer: CPU, Memory Devices, Types of Computers, Characteristics of Computer and related material; Application Software: Microsoft Word, Microsoft Power Point, Microsoft Excel; Search Engines, Web Design, Email, Internet Surfing, Social Networking (Facebook, Twitter, etc); General Introduction to Virus and Antivirus utilities; Programming Languages

Part-II: (Professional) 50 Marks
I. Development of Curriculum and Instructional Material
- Elements of Curriculum.
II. Process of Teaching and Teaching Strategies
   - Process of Classroom Communication
   - Factors affecting Classroom Communication
   - Barriers to Classroom Communications
   - Use of Instructional Materials and Media

III. Educational Assessment and Evaluation
   - Concept of Classroom Assessment and Evaluation
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   - Approaches to Evaluation: Formative Evaluation; Summative Evaluation
   - Types of Test: Essay Type; Objective Type: Multiple Choice, True-False Items, Matching Type; Principles of Construction of these Test
   - Characteristics of a Good Test: Validity, Reliability, Objectivity, Usability

IV. Educational Administration and Supervision
   - The Concept of Administration
   - Educational Supervision

V. Research Methods in Education
   - Scientific Method and its Application in Education
   - Sampling Techniques:
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   - Research Proposal and Report Writing

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<td>3.</td>
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<td>Deborah Morley, Charles Parker</td>
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</table>
Forestry: 100 Marks

I. Definition of Forestry
   - National Definition of Forestry (Pakistan)
   - National Definition of Deforestation (Pakistan)
   - Definition of Forestry by UNFCC, Convention of Bio Diversity, FAO
   - Definition of Deforestation by UNFCCC, Convention of Bio Diversity, FAO

II. Introduction to Forestry
   - Forest resources of Pakistan and their distribution of forests in different ecological zones with species composition.
   - Economic, social and environmental importance of forests.
   - Main issues in protections and development of forest resources in Pakistan.
   - Measures taken for protection and development of forest resources (legal, technical, social and financial).

III. Forest Policies and Laws
   - Forest Laws/Regulations/Acts/Ordinances:
     - The Forest Act 1927
     - Pakistan National Forest Policy 2015
   - Provincial Acts/Ordinances:
     - Khyber Pakhtunkhwa Forest Ordinance 2002
     - Baluchistan Forest Regulation. 1890
     - Sindh Forest Act 2012
     - Gilgit Forest Rules 1932
     - AJK Forest Regulations
   - Multi-lateral Environment Agreements:
     - United Nations Framework Convention on Climate Change
     - United Nations Forum on Forest Strategic Plan
     - Convention on Biological Diversity 1993

IV. Forest Management
   - Definition and scope of forest management in Pakistan.
   - Objectives of forest management.
   - Forest fires and their control
   - Protected area Management
   - Silviculture efforts at National/Provincial level on forest & Wildlife

V. Forestry and Wildlife Statistics of Pakistan
## SUGGESTED READINGS

<table>
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<tr>
<th>S. No.</th>
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<tbody>
<tr>
<td>6.</td>
<td>Forest Act, 1927</td>
<td>Ideal Publisher, Karachi</td>
</tr>
<tr>
<td>7.</td>
<td>NWFP (KP) Forest Ordinance 2002.</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Global Forest Resources Association 2010</td>
<td>FAO Forestry Paper 163 Food and Agriculture Organization</td>
</tr>
<tr>
<td>15.</td>
<td><a href="http://www.cbt.intl">www.cbt.intl</a> (Convention on Biological Diversity)</td>
<td></td>
</tr>
</tbody>
</table>
PAPER-II: PROFESSIONAL

Max Marks: 100

<table>
<thead>
<tr>
<th>Case No.</th>
<th>F.4-239/2018-R</th>
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<tbody>
<tr>
<td>Particulars of post</td>
<td>Assistant Professor (Male) (Mathematics) (BS-18), F. G. Colleges, Directorate Of Federal Government Educational Institutions (Cantts/ Garrisons), Ministry Of Defence</td>
</tr>
</tbody>
</table>
| Minimum Qualification & Experience: | Ph.D. Degree in the relevant subject and one (1) year post qualification teaching experience at College/ University level.  
OR  
M.Phil in the relevant subject with three (3) years post qualification teaching experience at College/ University level.  
OR  
Second Class or Grade ‘C’ Master’s Degree in the relevant subject with five (5) years post qualification teaching experience at College/ University level. |

Part-I: (Mathematics) 50 Marks

I. Vector Calculus

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

II. Statics

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

III. Dynamics

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

IV. Ordinary differential equations

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

- Trigonometric Fourier series; sine and cosine series; Bessel inequality; summation of infinite series; convergence of the Fourier series.

- Partial differential equations of first order; classification of partial differential equations of second order; boundary value problems; solution by the method of separation of variables; problems associated with Laplace equation, wave equation and the heat equation in Cartesian coordinates.

VI. Numerical Methods

- Solution of nonlinear equations by bisection, secant and Newton-Raphson methods; the fixed-point iterative method; order of convergence of a method.

- Solution of a system of linear equations; diagonally dominant systems; the Jacobi and Gauss-Seidel methods.

- Numerical solution of an ordinary differential equation; Euler and modified Euler methods; Runge-Kutta methods.

Part-II: (Professional) 50 Marks

I. Development of Curriculum and Instructional Material

- Elements of Curriculum.


II. Process of Teaching and Teaching Strategies

- Process of Classroom Communication

- Factors affecting Classroom Communication

- Barriers to Classroom Communications

- Use of Instructional Materials and Media

III. Educational Assessment and Evaluation

- Concept of Classroom Assessment and Evaluation

- Distinction between Assessment, Evaluation and Measurement

- Approaches to Evaluation: Formative Evaluation; Summative Evaluation

- Types of Test: Essay Type; Objective Type: Multiple Choice, True-False Items, Matching Type; Principles of Construction of these Test

- Characteristics of a Good Test: Validity, Reliability, Objectivity, Usability

IV. Educational Administration and Supervision

- The Concept of Administration

- Educational Supervision

V. Research Methods in Education

- Scientific Method and its Application in Education

- Sampling Techniques:

- Research Instruments: Questionnaire; Interview; Test; Observation; Rating Scale

- Research Proposal and Report Writing
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## PAPER-II: PROFESSIONAL

<table>
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<th>Max Marks: 100</th>
<th>Time Allowed: 3 Hours</th>
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<tbody>
<tr>
<td>Case No.</td>
<td>F.4-245/2018-R</td>
</tr>
<tr>
<td>Particulars of post</td>
<td>Physician (General Medicine) (BS-19), Federal General Hospital, Chak Shahzad, Islamabad, Cabinet Division.</td>
</tr>
</tbody>
</table>
| Minimum Qualification & Experience: | i. MBBS degree recognized by PM&DC.  
   ii. Postgraduate higher diploma in the relevant field recognized by PM&DC with seven (7) years post graduate experience.  
   OR  
   Post graduate lower diploma in the relevant field recognized by PM&DC with ten (10) years post graduate experience. |

### Part-I: (Qualification Based)  50 Marks

Core courses of **MBBS Degree**

### Part-II: (Professional)  50 Marks

Core courses of Post Graduate Lower Diploma in **General Medicine**.
Case No. | F.4-246/2018-R
---|---
Particulars of post | **Chief Documentation Officer** (BS-19), Academy of Educational Planning and Management (AEPAM), Ministry of Federal Education and Professional Training

Minimum Qualification & Experience: | Ph. D in Library Sciences with 08 years post qualification experience in the relevant field.
| OR
| M. Phil in Library Sciences with 10 years post qualification experience in the relevant field.
| OR
| Second Class or Grade ‘C’ Master’s degree in Library Science with 12 years post qualification experience in the relevant field

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Part-I: 50 Marks
(Human Resource, Financial Management, Quality Management and Information Technology)

I. Human Resource and Financial Management

II. Basic Concept of Quality Management
ISO-9000, ISO-13000, other certifications regarding quality measurement; management, management for Results, Setting Performance Goals and Targets; Job Analysis: Job Description, Job Specification, Performance Evaluation;

III. Information Technology and MS Office
Fundamentals of Computer: CPU, Memory Devices, Types of Computers, Characteristics of Computer and related material; Application Software: Microsoft Word, Microsoft Power Point, Microsoft Excel; Search Engines, Web Design, Email, Internet Surfing, Social Networking (Facebook, Twitter, etc); General Introduction to Virus and Antivirus utilities; Programming Languages

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Part-II: (Library/Information Science) 50 Marks

I. Use of Emerging Technologies in Library
ii. Organization of Information


iii. Basic Reference Sources

Definition. Evaluation Criteria. Bibliographies-- General Bibliographies, Basic Guides To Reference Materials, Library Catalogues; Serials Guides; Indexes and Abstracts; HEC NDL; Dictionaries and Thesauri; Almanacs And Fact Books; Encyclopaedias; Directories; Biographical Sources; Geographical Sources-- Maps, Atlases & Gazetteers; Reference Websites.

iv. Management of Library and Information Services


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<td>Governance</td>
<td>Anne Mette Kjær</td>
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<td>7.</td>
<td>Role of ICTs in Library and Information Science</td>
<td>A. Kaliammal &amp; G. Thamaraiselvi</td>
</tr>
</tbody>
</table>
Case No. | F.4-257/2018-R
Particulars of post | Associate Professor (Mathematics) (BS-19), Federal College of Education, Capital Administration and Development Division.
Minimum Qualification & Experience: | Second Class or Grade ‘C’ Master’s Degree in Mathematics with Twelve (12) years post qualification teaching/ administrative experience at College/ University level.

Part-I: (Mathematics) 50 Marks

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

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

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

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

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

VI. Numerical Methods
- Solution of nonlinear equations by bisection, secant and Newton-Raphson methods; the fixed- point iterative method; order of convergence of a method.
- Solution of a system of linear equations; diagonally dominant systems; the Jacobi and Gauss-Seidel methods.
Numerical solution of an ordinary differential equation; Euler and modified Euler methods; Runge-Kutta methods.

Part-II: (Professional) 50 Marks

I. Development of Curriculum and Instructional Material
- Elements of Curriculum.

II. Process of Teaching and Teaching Strategies
- Process of Classroom Communication
- Factors affecting Classroom Communication
- Barriers to Classroom Communications
- Use of Instructional Materials and Media

III. Educational Assessment and Evaluation
- Concept of Classroom Assessment and Evaluation
- Distinction between Assessment, Evaluation and Measurement
- Approaches to Evaluation: Formative Evaluation; Summative Evaluation
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IV. Educational Administration and Supervision
- The Concept of Administration
- Educational Supervision

V. Research Methods in Education
- Scientific Method and its Application in Education
- Sampling Techniques:
- Research Instruments: Questionnaire: Interview; Test; Observation; Rating Scale
- Research Proposal and Report Writing

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</table>
## Case No.
F.4-263/2018-R

### Particulars of post
**Associate Anaesthetist (BS-18)**, Federal General Hospital, Chak Shahzad Islamabad, Capital Administration and Development Division.

### Minimum Qualification & Experience:

1. MBBS degree recognized by PM&DC.
2. Postgraduate higher diploma in the relevant field recognized by PM&DC with 3 years post graduate experience.

**OR**

Postgraduate lower diploma in the relevant field recognized by PM&DC with 5 years post graduate experience.

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### Part-I: (Qualification Based) 50 Marks

Core courses of **MBBS Degree**

### Part-II: (Professional) 50 Marks

Core courses of Post Graduate Lower Diploma in **Anaesthesia**.