

FEDERAL PUBLIC SERVICE COMMISSION
(Curriculum & Research Wing)

Schemes and Syllabi for Screening/Professional Tests as well as Descriptive Examination
Relating to Posts Advertised under Consolidated Advertisement No. 02/2018

| S. No | Case No. F.4- | Particulars of Post(s) | Qualifications for Posts | Test Specification | Topics of Syllabi |
|-------|---------------|--|--|---|--|
| 1. | 01/2018 | Patrol Officer (BS-14), National Highways & Motorways Police, Ministry of Communications. | i. Second Class or Grade 'C' Bachelor's Degree ii. <u>Minimum Height:</u> a) <u>For Male</u> 5'-8" b) <u>For Female</u> 5'-4" (For candidates of Balochistan height is relaxable by 2" for male and by 1" for female) iii. <u>Minimum Chest Measurement:</u> 33"-35" (Relaxable by 1") iv. Car and Motorcycle driving proficiency required. | Objective Type Test(MCQ) <u>Part-I</u> English =20 Marks <u>Part-II :</u> General Intelligence Test = 80 Marks | <u>Part-I</u> Grammar Usage, Sentence Structuring <u>Part-II</u> <ul style="list-style-type: none"> • Basic Arithmetic. • Current Affairs. • Pakistan Affairs & Islamic Studies • Everyday/General Science Note : (Equal weightage for each topic at Part-II) |
| 2. | 02/2018 | Patrol Officer (BS-14) (For departmental employees of NH & MP), National Highways & Motorways Police, Ministry of Communications. | | | |
| 3. | 14/2018 | Assistant Director (Law) (BS-17) Anti Narcotics Force, Ministry of Narcotics Control | i. LLB or equivalent qualification recognized by HEC ii. Two (2) years post qualification practice/ experience of work in the lower courts. | Objective Type Test (MCQ) <u>Part-I</u> English = 20 marks <u>Part-II</u> Professional Test=80 marks | <u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring. <u>Part-II</u> <ul style="list-style-type: none"> • Criminal Procedure Code, 1898 Section 154, • Pakistan Penal Code, • Anti Narcotics Force Act, 1997, • Control of Narcotic Substances Act, 1997, • International Cooperation on Narcotics Control • Mutual Legal Assistance |
| 4. | 23/2018 | Translator (BS-16), Ministry of Commerce. | i. Graduate. ii. Three (3) years post qualification experience in Government organizations in translation from English to Urdu and vice versa. | Subjective Test= 100 Marks Qualifying Threshold = 40 Marks | <ul style="list-style-type: none"> • Translation of 5 short paragraphs from English to Urdu =5X10=50 Marks • Translation of 5 short paragraphs from Urdu to English =5X10=50 Marks |

| S. No | Case No. F.4- | Particulars of Post(s) | Qualifications for Posts | Test Specification | Topics of Syllabi |
|-------|---------------|--|---|--|--|
| 5. | 28/2018 | Computer Operator (BS-16) Federal Government Educational Institutions Directorate (FGEI) (Cantts/Garrisons), Ministry of Defence. | i. Second Class or Grade 'C' Bachelor's degree in Computer Science/ Information Technology or equivalent from a University recognized by the HEC. ii. Two (2) years post qualification experience in computer operation. OR i. Second Class or Grade 'C' Bachelor's degree in Math/ Statistics/ Physics/ Economics with Post Graduate Diploma in Computer Science from an Institute recognized by the HEC. ii. Two (2) years post qualification experience in computer operation | Objective Type Test (MCQ) Part-I English =20 marks Part-II Professional Test =80 marks | Part-I Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> • Software Research and Development, • Program logic, • Visual Basic, C++, Java, Unix/Red Hat Linux Operating System, • Computer Networks and Internet, • Computer Graphics and Algorithms • Development of Basic Algorithms, • Analyzing Problems. |
| 6. | 29/2018 | Junior Ordnance Management Officer (BS-16), OS Directorate, GHQ, Ministry of Defence | i. Second Class or Grade 'C' Bachelor's degree or equivalent from a University recognized by HEC. ii. Two (02) years post qualification experience in Store Management. | Objective Type Test (MCQ) Part-I English =20 marks Part-II Professional Test=80 marks | Part-I Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> • Basic Arithmetic • General Science • Basic knowledge of I.T • Knowledge of Procedures for Receipt and issue of Stores • Knowledge of the subject of:- <ol style="list-style-type: none"> a. Stock Taking b. Care and preservation of Military Stores c. Ware House Management |
| 7. | 39/2018 | Charge/Staff Nurse (BS-16), Federal Government Polyclinic, Islamabad, Capital Administration and Development Division. | i. Registered Nurse and Registered Midwife with PNC. ii. For Male one year course/ certificate in nursing related field in lieu of midwifery. | Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test=80 Marks | Part-I Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> • Basic Medical Sciences • General Nursing • Ward Administration • Hospitality of the Patients • Care vs. Cure for Health Management |

| S. No | Case No. F.4- | Particulars of Post(s) | Qualifications for Posts | Test Specification | Topics of Syllabi |
|-------|---------------|--|--|---|--|
| 8. | 46/2018 | Assistant Chief Administrative Officer (BS-17), GHQ, Ministry of Defence, (Defence Division). | Second Class or Grade 'C' Master's Degree in Business Administration/ Public Administration or equivalent from a university recognized by HEC. | Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test = 80 marks | Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> Accounting Principles & Procedures, Journal, ledger & Cash Book, Preparation of Annual Budget, Financial Planning & Cost Accounting, Head of Accounts, Re-appropriation of Accounts and Supplementary Grant, Settlement of Audit Objections Preparation of Pension Documents. System of Financial Control and Budgeting, 2006 Public Procurement Rules, 2004 |
| 9. | 50/2018 | 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 Govt. 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 <ul style="list-style-type: none"> 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 |
| 10. | 53/2018 | Assistant Armament Supply Officer (BS-16), Naval Headquarters, Ministry of Defence. | i) Second Class or Grade 'C' Bachelor's degree in Science with Physics/ Chemistry. ii) Three (3) years post qualification experience in Ammunition matters OR Master's Degree in Physics/ Chemistry. | Objective Type Test (MCQ) Part-I English = 20 marks Part-II General Science Test = 80 marks | Part-I Vocabulary, Grammar Usage Part-II Physics: <ul style="list-style-type: none"> Heat & Thermodynamics, Electrostatics, Electromagnetism, Motion & Force, Work, Energy, Sound, Gravitational Force, Chemistry: <ul style="list-style-type: none"> Metallurgy, Thermodynamics, Nature, Properties and States of Matter, Gases, Liquids & Solids, Organic Chemistry |

| S. No | Case No. F.4- | Particulars of Post(s) | Qualifications for Posts | Test Specification | Topics of Syllabi |
|-------|---------------|---|---|--|--|
| 11. | 57/2018 | Data Processing Officer (BS-17), Economic Affairs Division, Ministry of Finance, Revenue and Economic Affairs. | i. Second Class or Grade 'C' Master's Degree in Computer Science/BCS (4 years)/ IT/ Electronics or equivalent from a University recognized by the HEC OR B.Sc. in Computer Engineering (Software) OR Second Class or Grade 'C' Master's Degree in Math/ Physics/Statistics/Economics and one year diploma in Computer from the recognized Institute/ University recognized by the HEC. OR Bachelor's of Engineering in Electrical/ Electronics/ Software Engineering/ Computer Engineering/ System Engineering or equivalent from a University recognized by the HEC 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 <ul style="list-style-type: none"> • Operating Systems • Algorithm Design • Database Management System (DBMS) • Implementation & Security of LAN & WAN • Software Development Techniques • Object Oriented Paradigm • Software Engineering • Computer Organization & Architecture • Computer Communications & Networks • Web Engineering & Technologies |

Schemes and Syllabi for Written Examination (Descriptive) for All Posts in BS-18 & BS-19 included in Consolidated Advertisement No. 02/2018

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

| Sr. No. | Title | Author |
|---------|--------------------------------|--|
| 1. | English Grammar in Use | Raymond Murphy (Cambridge University Press) |
| 2. | Practical English Usage | M. Swan (Oxford University Press) |
| 3. | The Little, Brown Handbook | H. Ramsey Flower & Jane Aaron (The Little, Brown & Co; Harper Collins) |
| 4. | A University English Grammar | R. Quirk & S. Greenbaum (ELBS; Longmans) |
| 5. | Write Better, Speak Better | Readers Digest Association |
| 6. | Modern English in Action | Henry Christ (D.C. Heath & Co.) |
| 7. | Exploring the World of English | Syed Saadat Ali Shah |

PAPER-II: PROFESSIONAL**Max Marks: 100****Time Allowed: 3 Hours**

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| Case No. | F.4-11/2018-R |
| Particulars of post | Physician Psychiatry (BS-19), Federal Government Polyclinic, Capital Administration and Development Division. |
| Minimum Qualification & Experience: | i. MBBS or equivalent qualification recognized by Pakistan Medical and Dental Council ii. Postgraduate higher diploma in the requisite speciality with seven (7) years clinical experience in the requisite speciality OR Postgraduate lower diploma in the requisite speciality with 10 years post qualification clinical experience in the requisite speciality. |

Part-I: (Qualification Based)**50 Marks**Core courses of **MBBS Degree****Part-II: (Professional)****50 Marks**Core courses of Post Graduate Lower Diploma in **Psychiatry**.

PAPER-II: PROFESSIONALMax Marks: 100Time Allowed: 3 Hours

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|-------------------------------------|---|
| Case No. | F.4-21/2018-R |
| Particulars of post | Assistant Director (BS-18), Central Directorate of National Savings, Finance Division |
| Minimum Qualification & Experience: | <p>i) Second Class or Grade 'C' Master's Degree in Economics/ Statistics/ Commerce/ Accounting/ Finance/ Business Administration/ Public Administration/ Cost and Management Accountant/ Chartered Accountant/ Administrative Sciences/ Management Sciences or equivalent qualification from University recognized by HEC.</p> <p>ii) Five (5) years post qualification experience in BS-17 and above in a financial institution.</p> |

Professional: 100 Marks**I. Human Resource and Financial Management**

Definition, Significance and Scope of Human Resource Management; Organization—Types of Organization, Theory of Organization, Principles of Organization, Organization of the Federal and Provincial Governments, Public Sector Enterprises; Approaches to Human Resource Management. Personnel Administration—Tools of Personnel Management: Selection, Training, Promotion, Compensation, Discipline; Communication, Communication Channels and Principles of Public Relations; Human Behaviour and Organizations Administration.—Elements of Financial Administration, Performance Programmed Budgeting, Capital Budget, Principles of Budgeting, Auditing and Accounting.

II. Money and Banking

Functions of Money, Quantity Theory of Money, Credit Creation, Functions of Central Banks, Instruments of Credit Control, Concept of Reserves, Liquidity Premium, Term Structure of Interest Rate, Fisher Equation etc; Transmission Mechanisms of Monetary Policy.

III. Public Financing

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

IV. Public Policy Planning, Implementation and Evaluation

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

V. Budgeting and Financial Management

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

VI. 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

SUGGESTED READINGS

| S. No. | Title | Author |
|---------------|---|---|
| 1. | Government Finance—An Economic Analysis | Due John, F. |
| 2. | Public Administration – Understanding Management, Politics and Law in the Public Sector | David H. Rosenbloom |
| 3. | Public Finance | Laurence Seidman |
| 4. | Public Finance in Theorey and Practice | Richard Abel Musgrave |
| 5. | Human Resource Management | H.T.Graham & Roger Bennett |
| 6. | Management | James A.F.Stoner, R.Eward Freeman, Daniel R.Gilbert Jr. |
| 7. | Understanding Computer: Today and Tomorrow | Deborah Morley, Charles Parker |
| 8. | MS Office 365 Handbook: 2013 Edition | Kevin Wilson |

PAPER-II: PROFESSIONAL**Max Marks: 100****Time Allowed: 3 Hours**

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|-------------------------------------|--|
| Case No. | F.4-27/2018-R |
| Particulars of post | Eye Specialist (BS-18), Medical Department of Pakistan Railways, Ministry of Railways. |
| Minimum Qualification & Experience: | <p>i. MBBS or equivalent qualification.</p> <p>ii. Post graduate higher diploma/ degree, viz., MS/FRCS/ FCPS/ MRCP/ FFA or equivalent in the requisite Speciality and two (2) years post qualification clinical experience.</p> <p style="text-align: center;">OR</p> <p>Post graduate lower diploma in the requisite Speciality and four (4) years post qualification clinical experience.</p> <p>i. NOTE: MBBS or equivalent qualification, Post graduate Higher Diploma and Post graduate Lower Diploma must be recognized by the Pakistan Medical & Dental Council.</p> |

Part-I: (Qualification Based)**50 Marks**Core courses of **MBBS Degree****Part-II: (Professional)****50 Marks**Core courses of FCPS with reference to **Eye Ophthalmology**.

PAPER-II: PROFESSIONAL**Max Marks: 100****Time Allowed: 3 Hours**

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|-------------------------------------|---|
| Case No. | F.4-30/2018-R |
| Particulars of post | Consultant Anaesthesia (BS-18 Plus 25% Special Pay), Health Department, Gilgit Baltistan, Ministry of Kashmir Affairs and Gilgit Baltistan. |
| Minimum Qualification & Experience: | i. MBBS or equivalent qualification from a university/ college recognized by PMDC. ii. Postgraduate Higher Diploma in the relevant specialty with 01 year post qualification experience in the relevant specialty OR Postgraduate lower diploma in the relevant specialty with three (3) years post qualification experience in the relevant specialty. |

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**.

PAPER-II: PROFESSIONAL

Max Marks: 100

Time Allowed: 3 Hours

| | |
|-------------------------------------|---|
| Case No. | F.4-40/2018-R |
| Particulars of post | Assistant technological Adviser (BS-18) , Ministry of Science & Technology |
| Minimum Qualification & Experience: | 1) Second Class or Grade 'C' B.E./B.Sc. (Engineering) or Equivalent recognized by Pakistan Engineering Council (PEC). 2) Five (5) years post qualification experience in Research & Development/Science & Technology Management. |

Part-I: (Research and Planning)**50 Marks****i. Communication Skills, Technical Writing and Presentation Skills**

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

ii. Planning and Managementa) Project Management

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

b) Time Management

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

c) Risk Management

Risk Identification, Risk Quantification, Risk Response Development and Risk Response Control.

d) Procurement Management

Procurement Planning, Solicitation Planning, Solicitation, Source Selection, Contract Administration and Contract Close-Out.

e) Closing

Administrative Closure, Contract Close-Out and Lessons Learnt.

f) Statistical Techniques

All statistical techniques related to Planning & Research

Part-II: 50 Marks

(Human Resource, Financial Management,
Quality Management and Information Technology)

I. Human Resource and Financial Management

Definition, Significance and Scope of Human Resource Management; Organization—Types of Organization, Theory of Organization, Principles of Organization, Organization of the Federal and Provincial Governments, Public Sector Enterprises; Approaches to Human Resource Management. Personnel Administration—Tools of Personnel Management: Selection, Training, Promotion, Compensation, Discipline; Communication, Communication Channels and Principles of Public Relations; Human Behaviour and Organizations Administration.—Elements of Financial Administration, Performance Programmed Budgeting, Capital Budget, Principles of Budgeting, Auditing and Accounting.

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

SUGGESTED READINGS

| S. No. | Title | Author |
|--------|--|---|
| 1. | Practical English Grammar | A.J. Thomson and A.V. Martinet. |
| 2. | Writing. Intermediate | Marie-Christine Boutin, Suzanne Brinand and Francoise Grellet. |
| 3. | Writing. Upper-Intermediate | Rob Nolasco. |
| 4. | Reading. Advanced | Brian Tomlinson and Rod Ellis. |
| 5. | Study Skills | Riachard Yorky |
| 6. | Writing. Advanced | Ron White. |
| 7. | College Writing Skills | John Langan. |
| 8. | Patterns of College Writing | Laurie G. Kirszner and Stephen R. Mandell. |
| 9. | The Mercury Reader. A Custom Publication. | Janice Neulib; Kathleen Shine Cain; Stephen Ruffus and Maurice Scharon. |
| 10. | Project Management Body of Knowledge, | Project Management Institute (PMI) standards committee |
| 11. | Software Project Management | S.A. Kelkar, A Concise Study, Prentice Hall of India. |
| 12. | Human Resource Management | H.T. Graham & Roger Bennett |
| 13. | Management | James A.F. Stoner, R. Edward Freeman, Daniel R. Gilbert Jr. |
| 14. | Understanding Computer: Today and Tomorrow | Deborah Morley, Charles Parker |
| 15. | MS Office 365 Handbook: 2013 Edition | Kevin Wilson |
| 16. | Governance | Anne Mette Kjær |

PAPER-II: PROFESSIONALMax Marks: 100Time Allowed: 3 Hours

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|-------------------------------------|---|
| Case No. | F.4-41/2018-R |
| Particulars of post | Assistant Scientific Adviser (BS-18), Ministry of Science & Technology |
| Minimum Qualification & Experience: | 1) Second Class or Grade 'C' M.Sc. in Natural Sciences or equivalent qualification from University recognized by HEC. 2) Five (5) years post qualification experience in Research & Development/Science & Technology Management. |

Part-I: (Research and Planning)**50 Marks****i. Communication Skills, Technical Writing and Presentation Skills**

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

ii. Planning and Management**a) Project Management**

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

b) Time Management

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

c) Risk Management

Risk Identification, Risk Quantification, Risk Response Development and Risk Response Control.

d) Procurement Management

Procurement Planning, Solicitation Planning, Solicitation, Source Selection, Contract Administration and Contract Close-Out.

e) Closing

Administrative Closure, Contract Close-Out and Lessons Learnt.

f) Statistical Techniques

All statistical techniques related to Planning & Research

Part-II: 50 Marks

(Human Resource, Financial Management,
Quality Management and Information Technology)

I. Human Resource and Financial Management

Definition, Significance and Scope of Human Resource Management; Organization—Types of Organization, Theory of Organization, Principles of Organization, Organization of the Federal and Provincial Governments, Public Sector Enterprises; Approaches to Human Resource Management. Personnel Administration—Tools of Personnel Management: Selection, Training, Promotion, Compensation, Discipline; Communication, Communication Channels and Principles of Public Relations; Human Behaviour and Organizations Administration.—Elements

of Financial Administration, Performance Programmed Budgeting, Capital Budget, Principles of Budgeting, Auditing and Accounting.

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

SUGGESTED READINGS

| S. No. | Title | Author |
|--------|--|---|
| 1. | Practical English Grammar | A.J. Thomson and A.V. Martinet. |
| 2. | Writing. Intermediate | Marie-Christine Boutin, Suzanne Brinand and Francoise Grellet. |
| 3. | Writing. Upper-Intermediate | Rob Nolasco. |
| 4. | Reading. Advanced | Brian Tomlinson and Rod Ellis. |
| 5. | Study Skills | Riachard Yorky |
| 6. | Writing. Advanced | Ron White. |
| 7. | College Writing Skills | John Langan. |
| 8. | Patterns of College Writing | Laurie G. Kirszner and Stephen R. Mandell. |
| 9. | The Mercury Reader. A Custom Publication. | Janice Neulib; Kathleen Shine Cain; Stephen Ruffus and Maurice Scharon. |
| 10. | Project Management Body of Knowledge, | Project Management Institute (PMI) standards committee |
| 11. | Software Project Management | S.A. Kelkar, A Concise Study, Prentice Hall of India. |
| 12. | Human Resource Management | H.T. Graham & Roger Bennett |
| 13. | Management | James A.F. Stoner, R. Edward Freeman, Daniel R. Gilbert Jr. |
| 14. | Understanding Computer: Today and Tomorrow | Deborah Morley, Charles Parker |
| 15. | MS Office 365 Handbook: 2013 Edition | Kevin Wilson |
| 16. | Governance | Anne Mette Kjær |

PAPER-II: PROFESSIONALMax Marks: 100Time Allowed: 3 Hours

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|-------------------------------------|--|
| Case No. | F.4-42/2018-R |
| Particulars of post | Deputy Scientific Adviser (BS-18), Ministry of Science & Technology |
| Minimum Qualification & Experience: | 1) Second Class or Grade 'C' M.Sc. in Natural Sciences or equivalent qualification from University recognized by HEC. 2) Twelve (12) years post qualification experience in Research & Development/Science & Technology Management. |

Part-I: (Research and Planning)**50 Marks****i. Communication Skills, Technical Writing and Presentation Skills**

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

ii. Planning and Management**a) Project Management**

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

b) Time Management

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

c) Risk Management

Risk Identification, Risk Quantification, Risk Response Development and Risk Response Control.

d) Procurement Management

Procurement Planning, Solicitation Planning, Solicitation, Source Selection, Contract Administration and Contract Close-Out.

e) Closing

Administrative Closure, Contract Close-Out and Lessons Learnt.

f) Statistical Techniques

All statistical techniques related to Planning & Research

Part-II: 50 Marks

(Human Resource, Financial Management,
Quality Management and Information Technology)

I. Human Resource and Financial Management

Definition, Significance and Scope of Human Resource Management; Organization—Types of Organization, Theory of Organization, Principles of Organization, Organization of the Federal and Provincial Governments, Public Sector Enterprises; Approaches to Human Resource Management. Personnel Administration—Tools of Personnel Management: Selection, Training, Promotion, Compensation, Discipline; Communication, Communication Channels and Principles of Public Relations; Human Behaviour and Organizations Administration.—Elements

of Financial Administration, Performance Programmed Budgeting, Capital Budget, Principles of Budgeting, Auditing and Accounting.

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

SUGGESTED READINGS

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|--------|--|---|
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| 2. | Writing. Intermediate | Marie-Christine Boutin, Suzanne Brinand and Francoise Grellet. |
| 3. | Writing. Upper-Intermediate | Rob Nolasco. |
| 4. | Reading. Advanced | Brian Tomlinson and Rod Ellis. |
| 5. | Study Skills | Riachard Yorky |
| 6. | Writing. Advanced | Ron White. |
| 7. | College Writing Skills | John Langan. |
| 8. | Patterns of College Writing | Laurie G. Kirszner and Stephen R. Mandell. |
| 9. | The Mercury Reader. A Custom Publication. | Janice Neulib; Kathleen Shine Cain; Stephen Ruffus and Maurice Scharon. |
| 10. | Project Management Body of Knowledge, | Project Management Institute (PMI) standards committee |
| 11. | Software Project Management | S.A. Kelkar, A Concise Study, Prentice Hall of India. |
| 12. | Human Resource Management | H.T. Graham & Roger Bennett |
| 13. | Management | James A.F. Stoner, R. Edward Freeman, Daniel R. Gilbert Jr. |
| 14. | Understanding Computer: Today and Tomorrow | Deborah Morley, Charles Parker |
| 15. | MS Office 365 Handbook: 2013 Edition | Kevin Wilson |
| 16. | Governance | Anne Mette Kjær |

PAPER-II: PROFESSIONAL**Max Marks: 100****Time Allowed: 3 Hours**

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|-------------------------------------|--|
| Case No. | F.4-43/2018-R |
| Particulars of post | Assistant Electronics Adviser (BS-18), Ministry of Science & Technology |
| Minimum Qualification & Experience: | <p>1) Second Class or Grade 'C' M.Sc. in Physics with specialization in Electrical/Electronics or equivalent qualification from University recognized by HEC.</p> <p style="text-align: center;">OR</p> <p>Second Class or Grade 'C' B.E/B.Sc. (Engineering) in Electrical/Electronics/Telecommunication/Instrumentation/Control System/ Power/ Aerospace/Avionics/Mechatronics recognized by Pakistan Engineering Council (PEC).</p> <p>2) Five (5) years post qualification experience in Research & Development/Science & Technology Management.</p> |

Part-I: (Research and Planning)**50 Marks****i. Communication Skills, Technical Writing and Presentation Skills**

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

ii. Planning and Management**a) Project Management**

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

b) Time Management

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

c) Risk Management

Risk Identification, Risk Quantification, Risk Response Development and Risk Response Control.

d) Procurement Management

Procurement Planning, Solicitation Planning, Solicitation, Source Selection, Contract Administration and Contract Close-Out.

e) Closing

Administrative Closure, Contract Close-Out and Lessons Learnt.

f) Statistical Techniques

All statistical techniques related to Planning & Research

Part-II: 50 Marks

(Human Resource, Financial Management,
Quality Management and Information Technology)

I. Human Resource and Financial Management

Definition, Significance and Scope of Human Resource Management; Organization—Types of Organization, Theory of Organization, Principles of

Organization, Organization of the Federal and Provincial Governments, Public Sector Enterprises; Approaches to Human Resource Management. Personnel Administration—Tools of Personnel Management: Selection, Training, Promotion, Compensation, Discipline; Communication, Communication Channels and Principles of Public Relations; Human Behaviour and Organizations Administration.—Elements of Financial Administration, Performance Programmed Budgeting, Capital Budget, Principles of Budgeting, Auditing and Accounting.

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

SUGGESTED READINGS

| S. No. | Title | Author |
|--------|--|---|
| 1. | Practical English Grammar | A.J. Thomson and A.V. Martinet. |
| 2. | Writing. Intermediate | Marie-Christine Boutin, Suzanne Brinand and Francoise Grellet. |
| 3. | Writing. Upper-Intermediate | Rob Nolasco. |
| 4. | Reading. Advanced | Brian Tomlinson and Rod Ellis. |
| 5. | Study Skills | Riachard Yorky |
| 6. | Writing. Advanced | Ron White. |
| 7. | College Writing Skills | John Langan. |
| 8. | Patterns of College Writing | Laurie G. Kirszner and Stephen R. Mandell. |
| 9. | The Mercury Reader. A Custom Publication. | Janice Neulib; Kathleen Shine Cain; Stephen Ruffus and Maurice Scharon. |
| 10. | Project Management Body of Knowledge, | Project Management Institute (PMI) standards committee |
| 11. | Software Project Management | S.A. Kelkar, A Concise Study, Prentice Hall of India. |
| 12. | Human Resource Management | H.T. Graham & Roger Bennett |
| 13. | Management | James A.F. Stoner, R. Edward Freeman, Daniel R. Gilbert Jr. |
| 14. | Understanding Computer: Today and Tomorrow | Deborah Morley, Charles Parker |
| 15. | MS Office 365 Handbook: 2013 Edition | Kevin Wilson |
| 16. | Governance | Anne Mette Kjær |

PAPER-II: PROFESSIONALMax Marks: 100Time Allowed: 3 Hours

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|-------------------------------------|---|
| Case No. | F.4-44/2018-R |
| Particulars of post | Superintending Engineer (Floods) (BS-19) Office of the Chief Engineering Adviser/ Chairman Federal Flood Commission, Ministry of Water and Power |
| Minimum Qualification & Experience: | <p>i. Bachelor's Degree in Civil Engineering OR an equivalent qualification from a recognized University/ Institution.</p> <p>ii. Twelve (12) years post qualification experience in Planning, Design or construction or operation of Dams, Irrigation or Hydraulic Works in BS-17 and above OR equivalent in a Government / Semi-Government / reputable private organization</p> |

Engineering**100 Marks****I. Civil Engineering Fundamentals:**

Structures; stress, strain, shearing force and bending moment concepts, beams, columns, footing. Simply supported and Cantilever beams, Pulleys and gears.

II. Environmental Engineering:

Environmental impacts on water resources projects, transportation engineering projects, waste water treatment and management, water supply and distribution.

III. Fundamentals of Hydraulic Engineering:

Properties of fluid mechanics, pressure measuring devices, flow measuring devices, losses in pipelines, open channels, barrages and dams.

IV. Costing, Accounting and Budgeting:

Net present value, Net future value, cash flows, auditing, income statement, balance sheet, taxation, financial risk management, cost analysis.

V. Project Management:

Time lines, milestones, resources allocation, dependency, Gant Charts,

VI. Inventory Management:

FIFO models, LIFI models, Identification Schemes, Inventory management systems.

VII. Quality Management Systems:

QA modles. Deming, Juran Crosby, Quality circles, management responsibility, quality planning, purchasing, design process and design validation, quality audit, corrective and preventive measures.

SUGGESTED READINGS

| S.No. | Title | Author |
|--------------|---|--|
| 1. | Properties of Concrete | A.M. Neville. |
| 2. | Plain and reinforced concrete | Nilson. |
| 3. | Strength of material | Andrew Pytel and Singer. |
| 4. | Transportation Engineering, Planning and design | Paul Wright. |
| 5. | Civil Engineer's Reference Book | LS Blake |
| 6. | Surveying and Leveling | T.P Kanetaker. |
| 7. | Public Health Engineering | STEEL. |
| 8. | Fluid mechanics with engineering applications | Finnemore/ Franzini. |
| 9. | Handbook of Engineering Management | Dennis Lock. |
| 10. | Total Quality Management | Dale H. Besterfield, Carol Besterfield-Michna, Glen H. Besterfield, Mary Gesterfield-Sacre |

PAPER-II: PROFESSIONAL**Max Marks: 100****Time Allowed: 3 Hours**

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|-------------------------------------|---|
| Case No. | F.4-47/2018-R |
| Particulars of post | Joint Commissioner for Indus Waters (BS-19) , Office of the Pakistan Commissioner for Indus Waters, Ministry of Water and Power. |
| Minimum Qualification & Experience: | <ul style="list-style-type: none"> i. Bachelor's degree in Civil Engineering/ Agricultural Engineering, Registration with PEC required or recognized by HEC. ii. Twelve (12) years post qualification experience in any or all the fields of Designing/ Construction/ Maintenance and operation of irrigation or River Works in responsible position equivalent to BS-17 and above in Govt./ Semi Govt./ Public or highly reputable private Organization. |

Professional**100 Marks****1. Concrete Technology**

Constituent materials of concrete & their properties; Hydration, setting & hardening of cement; Testing of cement & aggregates; Types of concrete & their properties; Batching, mixing, transportation & placing of concrete; Properties of fresh and hardened concrete as well as factors affecting them; Testing of concrete for various properties including physical & strength tests.

2. Ultimate strength method

Analysis and Design of prismatic and non-prismatic sections in flexure, compatibility based analysis of sections and code requirements for flexure; Analysis of one-way and two-way solid slabs with general discussion on other slab systems; Design for flexure.

3. Methods of Irrigation

Classification of irrigation methods, Factors affecting the choice of irrigation method, Surface methods, Sprinkler irrigation methods, Sub-surface irrigation methods.

4. Canal Irrigation System

Alluvial and Non alluvial canals; Alignment of canal; Distribution system for canal irrigation, Basic definitions, Determination of required canal capacity, Canal losses, Evaporation, Seepage, Empirical formula for channel losses, Channel section for minimum seepage loss. Cross drainage works.

5. Design of Irrigation Channel

Design of stable channel, Regime Channels, Kennedy's theory, critical velocity ratio, Kutter's formula, Manning's formula, Lacey's theory, Design procedure for Lacey's theory, Estimation of transported sediment, bed load equations, Meyer-peter's and Einstein's formula, Muneer and Qureshi formula, Design procedure for lined/non-erodable irrigation channel, Maintenance of irrigation channels.

6. Reservoir Planning and Dams in General

Types of reservoirs, Flood control reservoir Multi purpose reservoir; Capacity of reservoirs, Storage zones of reservoirs, Reservoir yield, Estimation of demands and optimal reservoir operation, Flooding routing or flood absorption, Reservoir sedimentation, Silt control in reservoir, selection of suitable site for reservoir;

Economics of combined project, Cost-benefit consideration and general principle of optimizing capital budget.

7. Drainage

Purpose of drainage, Drainage needs, Water table, Water movements in subsoil, permeability, Methods of permeability determination.

8. Design of Drainage Systems

Surface drainage, Design of open ditches, Maintenance of alignment Drainage, Open drains, Methods of construction, Subsurface drainage, Tile drains, Mole drains, Determining depth and spacing of drains. Drainage coefficient, Size of the tile drain, Outlets for drains, Envelop material, Installation and maintenance of Tile Drains.

9. Well Irrigation

Aquifers, Types of aquifers, Storage co-effecient, Well- hydraulics, Well losses, Capacity of well, Interference among wells and tube well types and its construction.

10. Canal Lining

Lining and its types, Financial justification and economics of canal lining, Design of lined irrigation channels, Permissible velocities in lined channels, Construction of various types of lining.

11. Indus Waters Treaty 1960 and its implementation

SUGGESTED READINGS

| S. No. | Title | Author |
|--------|--|--------------------------------|
| 1. | Design of Reinforced Concrete Structures | Hassoun, M.N. |
| 2. | Reinforced Concrete Design | Wang, C.K. & Charles G.S. |
| 3. | Irrigation and Drainage | Sharma, R.K. and T.R.Sharma, |
| 4. | Water Resources Engineering | Linslay, R.K. and Joseph, B.F. |

PAPER-II: PROFESSIONALMax Marks: 100Time Allowed: 3 Hours

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|-------------------------------------|--|
| Case No. | F.4-49/2018-R |
| Particulars of post | 2nd Engineer (Electronics) (System Engineer PCBRF) (BS-18), Pakistan Navy, Ministry of Defence |
| Minimum Qualification & Experience: | i. Bachelor of Engineering in Electrical/ Electronics/ Computer or equivalent from the recognized University. ii. Five years post qualification experience in Govt./ Semi-Govt./ or a firm of repute in repairs of the multi layer Printed Circuit Board/ use of Specialized Diagnostic Test Equipment/ handling of Programmable ICs. |

Engineering: 100 Marks**I. Electricity & Electronics:**

Electricity & Magnetism; Electrical potential, Resistance, Laws of resistance, Conductance, Conductivity, Impedance, Ohm law, Resistance in series and in parallel, practical resistors, work, power, Energy, Joule's law of electric field intensity, Gauss's Theorem, Capacitor, Capacitance, Capacitors in parallel and series. Force on a conductor in a magnetic field, electrical and magnetic circuits, leakage flux, Relation between magnetism and electricity, Induced emf, induced current and directions, Faraday's laws of electromagnetic inductions, Lenz's law, dynamically induced emf, Self inductance, mutual inductance and inductance in series/parallel, magnetic hysteresis, Energy stored in magnetic field, Generation of alternating currents and voltages.

II. Electrical Machines:

DC Motors: Shunt, Series and Compound Motors, Speed and Torque Relations. Transformers: Principle, Construction, Voltage transformation ratio, Step-up/step-down transformers, Copper & Iron Losses, Transformer connections; delta and star.

AC Motors: Induction motor, Synchronous motor, Performance, Efficiency. Single phase and three phase Motors.

Generators: Principle, Construction, Different components of generators. AC Generators, DC Generators.

III. Electronics:

Transistors: types, calculations of voltages and currents in simple transistor circuits.

Amplifier & Oscillators: Working and classification of amplifiers, Class A and Class B Amplifiers, Feedback Amplifiers, Types of Feedback, RC Oscillators.

Integrated Circuits: OP Amps, timers, flip flop, converters, filters.

Telecommunications: EM theory, antennas, antenna gain, free space loss, fading. Modulations (AM, FM, PM, PWM, Delta, FSK, ASK, PSK), Error correction, Demodulation, Detectors, Transmitter, Receivers.

DSP and Controls; filters, stability, Z-transform, Nyquist criteria, S domain, transfer functions.

Introduction to Computing: History and evolution of computers, central processing unit, data storage, input/output devices, multimedia, operating systems, programming languages, networking, the internet, system analyses and design, management information system, electronic commerce, security and privacy issues, ethical issues and the computing profession,

IV. **Power Systems:**

Power network analysis, Polyphase circuits, Transients, Transmission Lines, Losses.

V. **Costing, Accounting and Budgeting:**

Net present value, Net future value, cash flows, auditing, income statement, balance sheet, taxation, financial risk management, cost analysis.

VI. **Project Management:**

Time lines, milestones, resources allocation, dependency, Gant Charts,

VII. **Inventory Management:**

FIFO models, LIFO models, Identification Schemes, Inventory management systems.

VIII. **Quality Management Systems:**

QA models. Deming, Juran Crosby, Quality circles, management responsibility, quality planning, purchasing, design process and design validation, quality audit, corrective and preventive measures.

SUGGESTED READINGS

| S. No. | Title | Author |
|--------|--|--|
| 1. | Electrical Technology | B.L. Tharaja |
| 2. | Electronic Devices and Circuits. | Bogart |
| 3. | DC Machines | P.C. Sen |
| 4. | Semiconductors | Manzar Saeed |
| 5. | Modern Digital and Analog Communication | B.P.Lathi |
| 6. | Computers, tools for an Information age, | H.L. Captron, Addison Wesley |
| 7. | Handbook of Engineering Management | Dennis Lock. |
| 8. | Total Quality Management | Dale H. Besterfield, Carol Besterfield-Michna, Glen H. Besterfield, Mary Gesterfield-Sacre |

PAPER-II: PROFESSIONAL**Max Marks: 100****Time Allowed: 3 Hours**

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|-------------------------------------|---|
| Case No. | F.4-51/2018-R |
| Particulars of post | Rehabilitation Specialist (BS-18), Armed Forces Institute of Rehabilitation Medicine, Ministry of Defence. |
| Minimum Qualification & Experience: | i. MBBS with FCPS in Rehabilitation Medicine from CPSP. ii. Five (5) years post FCPS experience as Specialist in a Govt. Organization. |

Part-I: (Qualification Based)**50 Marks**Core courses of **MBBS Degree****Part-II: (Professional)****50 Marks**Core courses of FCPS in **Rehabilitation Medicine**.