

FEDERAL PUBLIC SERVICE COMMISSION
(Curriculum & Research Wing)

Scheme and Syllabi for Screening/Professional Tests as well as Descriptive Examination
Relating to Posts Advertised Vide Consolidated Advertisement No. 10/2015

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications for Posts	Test Specification	Main Topics for MCQ Test
1.	130/2015	General Knowledge Instructor (BS-17), Pakistan Marine Academy, Ministry of Ports and Shipping.	i) Second Class or Grade 'C' Master degree in International Relations. ii) Two (2) years post qualification experience of teaching current affairs in a service institution or equal number of Sea Service in the Rank.	Objective Type Test (MCQ) <u>Part-I</u> English =20 marks <u>Part-II</u> Subject Test = 50 marks <u>Part-III</u> Professional Test=30 marks	<u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring <u>Part-II</u> <ul style="list-style-type: none"> • Introduction to International Relations • Geo-Political Structure of the World • Global Issues in International Relations • Theories and Approaches to International Relations • International Law • Regional and International Organizations • Research Methods in International Relations • International Economic Relations • Introduction to Strategic Studies • Diplomacy • Conflict Resolution • Human Rights in International Relations • Comparative Foreign Policies of Major Powers: US, Russia, China • International Politics of Environment • Foreign Policy of Pakistan <u>Part-III</u> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Planning and Management of General Knowledge Competition and external programmes for cadets • Planning and Management of study tour/visits to historical places with cadets

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications for Posts	Test Specification	Main Topics for MCQ Test
2.	145/2015	Assistant Security Officer/ Deputy Assistant Director (BS-16), Airport Security Force, Aviation Division, Cabinet Secretariat	Bachelor's Degree.	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 <ul style="list-style-type: none"> • Basic Arithmetic. • Current Affairs. • Pakistan Affairs & Islamic Studies • Everyday/General Science • Security Measures to Maintain Law & Order Note : (Equal weightage for each topic at Part-II)
3.	146/2015	Assistant Private Secretary (BS-16), Ministry of Planning, Development and Reform.	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 of 50 w.p.m. iii. Must be computer literate.	<ul style="list-style-type: none"> • Typing Test with minimum Speed of 50 W.P.M 50 Marks • Shorthand Test with minimum Speed of 100 W.P.M 50 Marks 	
4.	147/2015	Assistant Electronic Engineer (BS-16), Meteorological Department, Cabinet Secretariat (Aviation Division)	i. Three (3) years post Matric Diploma in Electronics/ Instruments/ Mechatronics from a recognized institution ii. Three (3) years post qualification experience in Operation & maintenance of electronic equipment	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"> • Kirchhof's Law • Principle of Transformer • Diodes and Transistors • Illumination and its Unit • Rectifiers • Star and Delta Connections • Router and Armature • Impedance • Lightening Arrestor • Isolators and its Types. • PNP and NPN Junctions • Type of Oil used in Transformers

Syllabi for Written Examination (Descriptive) for all posts in BS-18 & BS-19

PAPER-I: ENGLISH (100 MARKS)

- (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 sentence 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 (100 MARKS)
Sergeant-at-Arms (BS-19), National Assembly Secretariat, Islamabad
(Case No. 133/2015)

MINIMUM QUALIFICATION: Second Class or Grade 'C' Master degree from HEC recognized University

EXPERIENCE: Ten (10) years service in BS-17 and above in security matters.

Part-I: 20 Marks
(Rules/Regulations)

- Rules of Procedure and conduct of Business in the National Assembly 2007.

Part-I: 80 Marks
(Security Matters)

- Roles and Responsibilities of Security Officers
- Patrolling Techniques
- Searching Methods
- Technology and Systems in the Security Environment
- The Security Officer and The Law
- Avoiding Conflict and Reducing Personal Risk
- Application of Communication Skills and Conflict Management for Security Guarding and Close Protection
- Emergency Procedures
- Confrontation Management
- Field preparedness and evacuation
- Weapons awareness
- Introduction to GPS and navigation
- Field communication equipment
- Vehicle check points/road blocks
- Hostage survival Techniques
- Security Management
- Risk Analysis/Security surveys and Audits
- Fire Prevention and Fire Fighting

PAPER-II: PROFESSIONAL (100 MARKS)

Deputy Director (LAN) (BS-18), National Assembly Secretariat, Islamabad
(Case No. 136/2015)

MINIMUM QUALIFICATION: Second Class or Grade 'C' MCS/M.Sc. in Computer Science/ IT/Information Security/ Software Engineering or any other equivalent degree from HEC recognized University.

EXPERIENCE: Five (5) years post qualification experience rendered in Public/Private Sector.

I. Computer Architecture

Microprocessor Bus Structure (Address/Data/Control), Registers and Flags, Storage Hierarchy (Main/Virtual/Cache/Secondary memory), Peripheral communication, CPU, ALU, Principles of Instruction Set Design, Multiprocessors & Thread Level Parallelism.

II. Object Oriented Programming

Data types, control structures, functions, arrays, classes, methods, object and encapsulation; constructors and destructors, operator and function overloading, virtual functions, derived classes, inheritance and polymorphism, I/O and file processing.

III. Data Structure and Algorithms

Stack and Queue, Sequential Search, Binary Search, Bubble sort, Merge sort, Quick sort, Insertion sort, Selection Sort, Linked Lists, Infix to postfix conversions, Expression tree construction, Tree traversals, Graph representation and traversal, Minimum spanning tree.

IV. Database Management Systems

Entity Relationship modeling, Relational data model and algebra, Structured Query language, Database design, functional dependencies and normal forms, concurrency control and recovery techniques, Database security and authorization.

V. Computer Communications and Networks

Asynchronous and Synchronous transmission, LAN/WAN/MAN, Network layers, Transport layer protocols TCP/IP, UDP, Error Control, Flow Control, Multiplexing, Routing, Bridging, Network security issues.

VI. Operating Systems

Process and CPU management, Multithreading, Deadlocks, Memory management and virtual memory, External Fragmentation, Paging and Demand Paging, File management systems, Scheduling and dispatch, Introduction to concurrency.

VII. Artificial Intelligence

Branches of Artificial Intelligence, Knowledge Representation (Logic, Rules, Semantic networks, Script). Searching (Blind Search, Depth first search, Breadth first search,

Best first search, knowledge directed search. Applications areas (Natural language processing, Expert Systems, Computer Vision, Speech Recognition, Robotics)

Suggested Reading

S.No.	Title	Author
1.	Modern Operating Systems	Andrew S. Tanenbaum
2.	Operating System Concepts	Addison-Wesley
3.	Algorithms and Data Structures	N. Wirth
4.	Data structures	Aaron M. Tanenbaum,
5.	Database Systems: A Practical Approach to Design, Implementation and Management	R.Connolly and P.Begg
6.	Introduction to Computer Networks	A. S. Tanenbaum
7.	Computer Networks and Internets	Douglas E. Comer
8.	Artificial Intelligence: A Modern Approach	Stuart Jonathan Russell, Peter Norvig, John F. Canny
9.	Computer Architecture: A Quantitative Approach	Hennessy & Patterson
10.	Computer Organization & Architecture: Designing for performance	W. Stallings

PAPER-II: PROFESSIONAL (100 MARKS)
Deputy Director (BS-18), Directorate of Dock Workers Safety,
(Regional Office) GWADAR, Ministry of Ports and Shipping
 (Case No. 142/2015)

MINIMUM QUALIFICATION: Bachelor's degree in Mechanical or Electrical Engineering
EXPERIENCE: (i) Five (5) years post qualification experience in testing appliances/ inspection of loading/ discharging of cargo on ports in Semi Government/ Government Organization. (ii) Knowledge of Labour Laws, Dock Labourers Act and the Pakistan Dock Labourers Regulations

Part-I: 50 Marks
(Engineering)

I. Mechanical Engineering Fundamentals

Mechanics and Strength of Materials: Concept of Stress and Strain, bending, torsion, geometric properties of areas, principal stresses, Tensile testing, Stress- Strain curve, Difference between Engineering and True Stress & Strain, Shear Stress & Strain, Concept of elastic and plastic deformation, Yield & ultimate Tensile strengths, Elongation, Toughness and Resilience, Ductility and Malleability, Hardness Testing, Brinell and Rock well Hardness test, bending moment,

Fluid Mechanics: Properties and basics of fluid mechanics, loss of head, power transformation by fluids, pumps, turbines. Fluid static's, Fluid dynamics, Types of flow: Turbulent and Laminar, Reynold's number.

Manufacturing: Different manufacturing processes like Casting, Forging, Machining, Rolling, Extrusion, Wire-drawing, welding, Turning (lathe), Milling, Shaping, Gear cutting, Drilling, Fitting.

II. 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.

III. 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.

Part-II: 50 Marks
(Administration/Professional)

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

IV. Laws about Ports and Shipping

Labour Laws, Dock Labourers Act, Pakistan Dock Labourers Regulations

SUGGESTED READINGS

S. No.	Title	Author
1.	Fluid mechanics with engineering applications	Finnemore/ Franzini.
2.	Schaum Outline Series; Strength of Materials	Williym A. Nash
3.	Fluid Mechanics	Lewitt
4.	Manufacturing Processes for Engineering Materials	Kalpakgjian
5.	Electrical Technology	B.L. Tharaja
6.	Electronic Devices and Circuits.	Bogart
7.	DC Machines	P.C. Sen
8.	Semiconductors	Manzar Saeed
9.	Human Resource Management	H.T.Graham & Roger Bennett
10.	Management	James A.F.Stoner, R.Eward Freeman, Daniel R.Gilbert Jr.
11.	Understanding Computer: Today and Tomorrow	Deborah Morley, Charles Parker
12.	MS Office 365 Handbook: 2013 Edition	Kevin Wilson

PAPER-II: PROFESSIONAL (100 MARKS)
for Deputy Captain Superintendent (BS-19),
Pakistan Marine Academy, Ministry of Ports and Shipping
 (Case No. 143/2015)

MINIMUM QUALIFICATION: Certificate of Competency as Master Foreign Going or equivalent Naval qualifications.

EXPERIENCE: Two (2) years experience in Training Establishment for sailors or equal number of Sea Service in the Rank.

Part-I: 20 Marks
 (Basic Concepts only)

- I. Public Administration
- II. Human Resource Management
- III. Financial Management
- IV. Information Technology and MS Office

Part-II: 80 Marks
 (Professional)

- I. Course Contents of Certificate of Competency as **Master Foreign Going Ships.**
- II. Pakistan Merchant Shipping Ordinance, 2001
- III. Mercantile Shipping (Safety Convention Certificate) Rules 1967.
- IV. Port Act 1908 (Relevant Portion)
- V. Lighthouse Act 1927

SUGGESTED READINGS

S. No.	Title	Author
1.	An Introduction to the Public Administration	E.N.Cladden
2.	Human Resource Management	H.T.Graham & Roger Bennett
3.	System of Financial Control and Budgeting, 2006	Published by Finance Division
4.	Understanding Computers: Today and Tomorrow	Deborah Morley, Charles Parker
5.	MS Office 365 Handbook: 2013 Edition	Kevin Wilson
6.	Relevant Rules, Acts, Ordinance and course contents mentioned in Part-II	