

REVISED SYLLABI FOR  
CSS COMPETITIVE EXAMINATION, CE-2016  
FPSC, F-5/1, AGA KHAN ROAD, ISLAMABAD  
Updated on: 7th July, 2015

**To select one subject of 200 marks only**

**Subjects:-**

- 1. Accountancy & Auditing (200 Marks)**
- 2. Economics (200 Marks)**
- 3. Computer Science (200 Marks)**
- 4. Political Science (200 Marks)**
- 5. International Relations (200 Marks)**



**ACCOUNTANCY & AUDITING (200 Marks)**  
**Paper-I (MARKS-100)**

## **(A) Financial Accounting (50 Marks)**

### **I. Fundamental Accounting Principles, Concepts, Assumptions and Conventions**

- Nature and Scope of Accounting
- Accrual/Matching Concept
- Consistency of Presentation and Comparability
- True and Fair View
- Neutrality
- Materiality
- Prudence
- Completeness
- Understandability and Usefulness
- Going Concern
- Substance over Form

### **II. Accounting Cycle/Process and Financial Statements**

- Transactions and/or Events, General Journal
- General Ledger
- Trial Balance (Unadjusted)
- Adjusting Entries and Adjusted Trial Balance
- Worksheet
- Financial Statements including Income Statement
- Statement of Financial Position (Balance Sheet)
- Statement of Cash Flows and Statement of Changes in Equity in accordance with the Financial Reporting Framework as specified by International Accounting Standard Board (IASB) through IFRSs/IASs
- Securities and Exchange Commission of Pakistan through Companies Ordinance 1984
- Closing and Reversing Entries

### **III. Attributes, and Significance of Accounting Information**

- Attributes of Accounting Information
- Information/Reporting Requirements of various Users/Stakeholders of Financial Statements including External (Investors/Shareholders)

- Creditors, Suppliers, Lenders/Financiers
- Government Agencies etc.
- Internal
  - Board of Directors
  - Partners
  - Managers
  - Employees etc.
- Stakeholders

#### **IV. Accounting for common Legal Forms of a Business**

- Accounting Principles and Financial Statements of Sole-proprietorships
- Partnerships and Joint Stock Companies including Banking
- Companies (Excluding Advanced Topics like Amalgamation)
- Capital Reduction
- Consolidation

#### **V. Accounting for Associations Not-for-profit, and for Public Sector**

- Accounting Principles and Financial Statements - of Associations Not-for-profit, and – of Public Sector Entities as per Standardized
- Financial Reporting Framework provided by International Public Sector Accounting Standards (IPSAS) Board and Practices being followed in the country

#### **VI. Accounting for Non-current Tangible Assets**

- Fundamental Concepts and Principles concerning Non-current Assets:
  - Cost
  - Depreciable Amount
  - Depreciation
  - Fair Value
  - Property
  - Plant and Equipment
  - Residual Value
  - Useful Life
- **Depreciation Methods and their Application (as specified by International Accounting Standards Board)**

- Straight-line Method
- Reducing Balance Method
- Number of Units Produced and basic know-how of other Methods/Techniques being commonly used by the Industry

## **VII. Fundamental and Technical Analysis of various Forms of Organizations:**

- Financial Statements' Analysis including both Horizontal (Measuring Change) and Vertical (Ratio) Analysis including Liquidity Ratios
- Activity Ratios
- Debt Ratios
- Profitability Ratios and Market Ratios
- Technical and Industry Analysis

### **(B) Cost and Managerial Accounting (50 Marks)**

## **VIII. Fundamental Cost Accounting Principles and Concepts**

- Nature and Scope of Cost and Managerial Accounting
- Cost Concepts
- Elements and Classification
- Underlying Differences among Financial
- Cost
- Management Accounting

## **IX. Accounting for Material, Labor and Factory Overheads (FOH)**

- Recognition and Valuation Principles for Material Inventory
- Methods to control Material Inventory
- Calculation/Measurement and Accounting for Payroll for all forms of Labor
- Time Rate and Piece Rate Systems
- Commonly used Group Incentive Schemes
- Factory Overhead Costs and FOH Rate
- Departmentalization of FOH Costs and their Allocation
- Apportionment and Reapportionment (Primary and Secondary Distributions)

- Methods for Secondary Distribution including both Repeated Apportionment/Distribution and Algebraic Method

#### **X. Costing for Specific Jobs, and Process Costing**

- Nature of a Specific Job, and Job-order Costing; Process Flow
- Process Costing by the use of Cost of Production Report (CPR)

#### **XI. Management Accounting for Planning, Decision-making and Control**

- Budgeting and its Use
  - Meaning and Nature of a Budget
  - Major Forms of a Budget including
  - Production and Sales Budget
  - Cash Budget
  - Flexible Budgets
  - Zero-based Budget
  - Master Budget etc.
- Break-even Analysis
  - Difference between Marginal and Absorption Costing Techniques
  - Concept of Relevant Cost
  - Application and Use of Contribution Margin and other Concepts for Planning and Decision-making (under Break-even Analysis)
- Variance Analysis
  - Meaning and Use of Standards and Variances
  - Major Classification of Variances including Material
  - Labor and FOH Variances
  - Computation

## **(A) Auditing (40 Marks)**

### **I. Fundamental Auditing Principles and Concepts**

- Audit and Auditing
- True and Fair View
- Audit Assertions
- Reasonable Assurance
- Documentation and Audit Evidence
- Audit Program
- Audit Risks
- Computer Information Systems (EDP Systems)
- Computer-assisted Audit Techniques (CAAT)
- Inspection
- Fraud
- Going Concern
- Audit Materiality
- Misstatement
- Governance and Premise
- Tests of Control and Substantive Procedures

### **II. Audit Considerations, Dimensions and Conduct:**

- Internal Control System and Internal Audit
- Internal VS External Audit
- Responsibility for Financial Statements
- Audit Planning
- Scope of an Audit
- Objectives of an Audit
- Inherent Limitations of an Audit
- Risk Assessment and Management
- Internal Audit and Corporate Governance
- Classification of Audit
- Qualities of an Auditor
- Auditing in Computer Information Systems (EDP Systems)
- Computer-assisted Audit Techniques

- General Auditing Principles and Techniques commonly applicable to various Types of Undertakings including Merchandising
- Manufacturing
- Banking
- Insurance
- Investment Entities etc.
- Audit Performance and Audit Completion

### III. Role and Responsibilities of an Auditor

- Auditor's professional and legal Rights
- Responsibilities & Duties
- Liabilities
- Auditor's Opinion and Report
- Classification (Types); -
  - As specified under the Companies Ordinance 1984
  - In the handbook of IFAC

### **(B) Business Taxation (30 Marks)**

### IV. Tax Structure, and Fundamental Concepts vis-à-vis Income Tax in Pakistan

- Tax Structure in Pakistan
- Fundamental Definitions/Terminologies defined under Section 2 of the Income Tax Ordinance 2001

### V. Income Tax and Sales Tax Principles, and their Application

- Selected Provisions from Income Tax - Income for Tax Purposes [Section 4, 9 & 10]
- Heads of Income [Section 11]
- Tax Payable on Taxable Income [First Schedule to the Ordinance]
- Salary Income and Taxation [Sections 12 to 14]
- Income from Property [Sections 15 & 16]
- Income from Business [Sections 18 to 20]
- Capital Gains [Sections 37 to 38]

- Income from other sources [Section 39, 40, 101(6), 111]
- Tax Credits [Sections 61 to 65]
- Taxation of Individuals
- AOPs and Companies [Sections 86, 92, 94]
- Due Date for Payment of Tax [Section 137]
- Deduction of Tax at Source/With-holding Tax [Sections 147, 149, 153, 155] and related Income Tax Rules 2002
- Selected Definitions and Provisions from Sales Tax –Scope of Tax [Section 3]
- Exempt supply [Section 2(11)]
- Goods [Section 2(12)]
- Input Tax [2(14)]
- Registered person [Section 2(25)]
- Supply [Section 2(33)]
- Tax [Section 2(34)]
- Retail Price and Retailer [Section 2(27)& 2(28)]
- Taxable Activity [Section 2(35)]
- Taxable Supply [Section 2(41)]
- Tax Fraction [Section 2(36)]
- Tax Period [Section 2(43)]
- Time of Supply [Section 2(44)]
- Determination of Tax Liability [Section 7]

### **(C) Business Studies, and Finance (30 Marks)**

#### **VI. Business Studies**

- Nature and Scope of a Business Entity
- Contemporary Challenges posed to a Business
- Common Legal Forms of a Business Entity – Sole Proprietorship
- Partnership
- Joint Stock Company
- Their Features
- Formation and Management
- Business Combinations and their Scope
- Business Cycle and its Implications
- Role of Information Technology in Business



## **VII. Finance**

- Meaning
- Nature and Scope of Finance
- Financial Management
- Common Modes (Types) of Business Finance
  - Short Financing
  - Medium Financing
  - Long-term Financing
- Nature and Scope of Financial Markets and Institutions
  - Features and Classification of Financial Markets
- Financial Management Techniques for Decision Making
  - Time Value of Money
  - Cost of Capital
  - Capital Budgeting Techniques

### **SUGGESTED READINGS**

#### **Accounting Paper – I (100 Marks)**

1. Financial Accounting, and Intermediate Accounting Kieso, **BY** Weygandt and Warfield
2. Fundamentals of Accounting Principles **BY** Wild. Larson. Chiappetta
3. Accounting for Decision-making Meigs, **BY** William and Haka
4. IFRSs / IASs **BY** ICAP / IFAC
5. Principles and practice of Book Keeping and Accounts **BY** Vickery, B.G
6. Financial Accounting **BY** M. Hanif and A. Mukherjee
7. Principles of Accounting, and Advanced Accounting **BY** Sohail Afzal
8. Principles of Accounting, and Advanced Accounting **BY** M.A Ghani and Ejaz
9. Cost Accounting – Planning and control **BY** Usry, Hammer, Matz
10. Managerial Accounting **BY** Peter C. Brewer, Ray H. Garison, Eric W. Noreen.
11. Cost Accounting **BY** Jain and Narang
12. Cost Accounting **BY** Nisar ur Din.

## **Accounting Paper – II (100 Marks)**

13. Auditing- Principles and Techniques **BY** S. K. Basu
14. Auditing **BY** Dicksee, L.R
15. Practical Auditing **BY** Spiecer and Pegler
16. Companies Ordinance 1984 **BY** SECP
17. Auditing **BY** S. K. Millichamp, ELBS
18. Handbook of International Quality Control, Auditing, Review and Other Assurance **BY** ICAP / IFAC
19. Auditing **BY** M. Irshad
20. Advanced Auditing **BY** Prof. Dr. Khuaja Amjad Seed
21. Income Tax Ordinance 2001 **BY** FBR
22. Introduction to Taxation / Synopsis of Taxes in Pakistan **BY** Mirza Munawar Hussain
23. Law in Practice – Income and Sales Tax **BY** Abdul Razzaq
24. Business Taxation **BY** Ijaz Ali Waince
25. Principles of Managerial Finance **BY** Lawrence J. Gitman
26. Fundamentals of Financial Management **BY** Van Horne. Wachowicz Jr. Bhaduri
27. Basic Business Finance Hunt, **BY** Williams and Donaldson
28. Business Studies Hall, **BY** Jones and Raffo
29. Foundations of Financial Markets and Institutions **BY** Fabozzi, Modigliani, Jones and Ferri
30. Contemporary Business **BY** Kurtz and Boone
31. Principles and Practice of Commerce **BY** Stephenson
32. Introduction to Business **BY** M. Saeed Nasir

## **ECONOMICS (200 Marks)**

### **Paper-I (MARKS-100)**

#### **I. Micro Economics**

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

#### **II. Macro Economics**

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

#### **III. Money and Banking**

- Functions of Money
- Quantity Theory of Money
- The Fisher and Cambridge Formulations
- Systems of note issue
- Credit Creation
- Functions of Central Banks
- Instruments of Credit Control
- Distinction between Goals
- Operational & Intermediate Target of Central Banks Policy,
- Concept of Reserves
- Liquidity Premium
- Term Structure of Interest Rate etc.
- Transmission Mechanisms of Monetary Policy
  - Theory of Liquidity Preference
  - TVM (Time Value of Money)
    - Capital Structure
    - Capital Restructuring
    - IS-LM Analysis and The role of Central Bank
    - Money Demand and Supply

#### **IV. Public Financing**

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

#### **V. International Trade**

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

## **VI. Economic Development**

- Concepts of development
- Human development
- Historical growth process and Development
- Theories of development
- Structural issues of development
- Income distribution and poverty
- Sectoral (agricultural, Industry, trade and fiancé) issues and development
- Environment and development.

**Paper-II (MARKS-100)**

**(Economics of Pakistan)**

### **I. Definition and Measurement of Development:**

- Characteristics of under development
- Rethinking on the concept of development
  - Growth vs. Redistributive justice
  - Absolute and Relative Poverty
  - Basic Needs Approach
  - Sustainable Development
  - Environmental Degradation & other Issues

## **II. Planning Experience of Pakistan**

- A critical evaluation of the strategy of economic planning
- Governance & Institutions

## **III. Agricultural Development in Pakistan**

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

## **IV. Industrial Development in Pakistan**

- Early industrialization strategy
- Creation of Financial and Development Institutions
- Major monetary and fiscal measures to promote industrial development
- Changing role of public sector over the plan periods
- Evaluation of Nationalization Policy
- Concentration of industrial income and wealth
- Evaluation of Import Substitution Policy and Export led Growth Strategy in Pakistan

## **V. Role of Foreign Trade and Aid in Economic Development**

- Trends in Pakistan's Balance of Payments
- Terms of Trade
- Changes in direction of trade
- Trends in Pakistan's major exports and imports

- Causes of significant changes in the trends
- The role of migration and remittances in Pakistan's economy
- Costs and benefits of Foreign Aid
- Role of Foreign Investment

## **VI. Privatization, Denationalization, Deregulation**

- Conceptual and operational aspects
- International comparisons.
- Pakistan Experience of Privatization

## **VII. Interest Free Banking in Pakistan**

## **VIII. Energy Policy of Pakistan**

## **IX. Social Sector Development in Pakistan**

## **X. Major Issues in Pakistan Economy**

- Energy crisis
- Corruption
- Bad governance
- External debt accumulation and dependency
- Unemployment
- Income inequality
- Inflation
- Fiscal and trade deficits
- Balance of payment issues
- Shortage of irrigation water

## **SUGGESTED READINGS**

1. A Text-book of Economics Theory **BY** Stonier & Hague
2. Economic Development **BY** Todaro, M.P.
3. Under Development and Agrarian Structure in Pakistan **BY** Khan, Mahmood Hassan
4. Economic of Islam **BY** Ahmed, S.M.
5. Economics **BY** Paul A. Samuleson
6. Factors in Economic Development **BY** Cairncross, A.K
7. Foreign Aid Theory and Practice in Southern Asia **BY** Wolf, Jr. DC
8. Government Finance—An Economic Analysis **BY** Due John, F.
9. Introduction to International Economics **BY** Snider, D.A, Paul Krugman, Donimich Salvatore
10. Microeconomic **BY** Ferguson, C.E. & Gould, J.P., Nicholson, Mankiw
11. Macroeconomics **BY** Rudigar Dorubush and Stanley Fisher Blanchard
12. Population Problems **BY** Theompson & Lewis
13. Studies in Economic Development with Special Reference to Pakistan **BY** Ghouse, A.
14. History of International Trade **BY** Findlay, R and O' Rourke, K
15. Colonialism and Modernization **BY** Karl Marx Anchor books
16. On Colonialism **BY** Karl Marx and Frederick Engels,
17. Economic Survey of Pakistan **BY** Government Publication

By: ZH Softs



# **COMPUTER SCIENCE (200 Marks)**

## **Paper-I (MARKS-100)**

### **Section-A (50 Marks)**

#### **I. Introduction to Computing**

- Introduction to Information Technology and Computers
- History of Computing
- Computer HW and SW Details
- Computer System Components and Communication System
- Input & Output devices and their types
- Storage Media and their types
- Types of Computer Hardware, Software, and Programming languages
- Information Representation & Number Systems
- User interfaces
- Major Software Issues
- Creation
- Formatting, and maintenance of Computer documents
- Usage of Word processors
  - Spread sheets
  - Power-Point
- Email
- Search Engines
- Browsers
- Messengers
- Internet
- Computers & Society
- Information Security/Privacy

- Computer Crimes and Ethical Challenges
- Viruses
- Plagiarism
- Intellectual Property Rights
- Difference between computer science
- Software engineering
- Information technology
- Information systems
- Computer engineering and bioinformatics
- IEEE / ACM computing disciplines guidelines

## **II. Programming Fundamentals**

- Basic programming elements and concepts
- Problem Solving & Program Design
- Components of a programming language
- Program development and execution
- Program structure
- Data types and variable declarations
- Standard I/O streams, Statements, Control structures
- Standard library functions
- User defined functions and parameter passing
- Arrays
- Pointers
- Strings
- Structures
- Unions
- Bit manipulation operators

## **III. Object Oriented Paradigm**

- Object Oriented Programming
  - Concepts
    - Object-oriented paradigm
    - data abstraction
    - Encapsulation
    - Inheritance

## ■ Polymorphism

- **Introduction to Classes and Objects**

- Classes
- Objects
- Data members
- Member functions

- **Classes Advanced**

- Friends
- Static
- Composition
- This
- Const

- **Operator overloading**

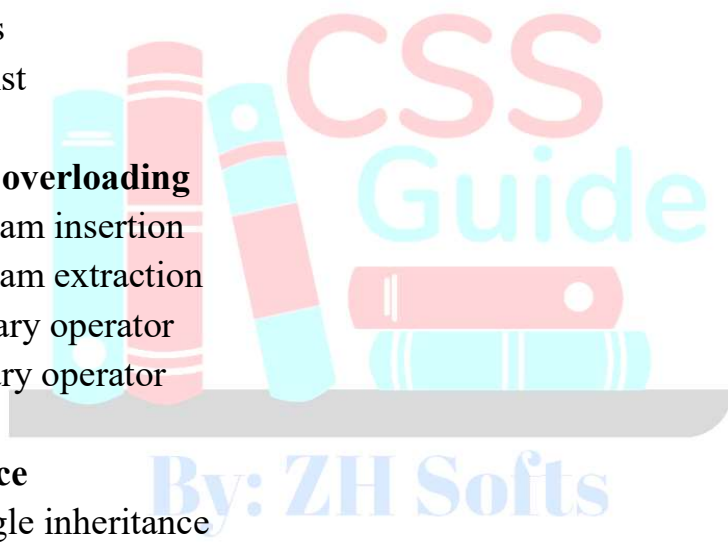
- Stream insertion
- Stream extraction
- Binary operator
- Unary operator

- **Inheritance**

- Single inheritance
- Multiple inheritances
- Protected members
- Method overriding

- **Polymorphism**

- Virtual function
- Pure-virtual functions
- Abstract class
- Abstract super class



- **Standard Template Library**
  - STL (Standard Template Library)
- **Files & streams**
  - Sequential access files
  - Random access files
- File processing
- Exception Handling

### **Section-B (50 Marks)**

#### **IV. Algorithms & Data Structures**

- Fundamental concepts
- Properties of algorithms
- Criteria for an Algorithm
- Parameters for selecting an algorithm
- Algorithm Representations
- Pseudo Code and Flow Charts
- Designing Algorithms
- Algorithm Analysis and Asymptotic Notations
- Classification of Lists
- Abstract Data Types
- Implementation of Stacks and Queues using ADTs
- Searching and Sorting Algorithms
  - Linear Search
  - Binary Search
  - Bubble Sort
  - Merge Sort
  - Quick Sort
  - Heap Sort
- Stacks
- Queues
- Hash Tables
  - Linear Probing
  - Bucketing
  - Chaining

- Recursion
- Trees
  - Binary Trees
  - Binary Search trees
  - AVL (Adelson, Velskii & Landis) Trees
  - Two-Three Trees
- Graphs
- Heuristic (Guided) Search
- Genetic Algorithms
- Encryption Algorithms
  - DES (Data Encryption Standard)
  - RSA (Rivest, Shamir, Adleman)

## **V. Software Engineering**

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

## **VI. Compiler Construction**

- Difference among various type of Translators
- Phases of Compilers

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

## **Paper-II (MARKS-100)**

### **Section-A (50 Marks)**

#### **I. Computer Organization & Architecture**

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

- Instruction-Level Parallelism And Superscalar Processors
- Parallel Processing
- Multi-Processor and Multi-core Systems

## **II. Computer Communications & Networks**

- Basic Concepts and Classification of Networks
- Circuit switching
- Packet switching
- Multiplexing (TDM, FDM)
- Layering: OSI and TCP/IP
  - Application Layer
    - Network application architectures
    - HTTP
    - FTP
    - Email
    - DNS
    - P2P applications
  - Transport Layer
    - Multiplexing in UDP and TCP
    - Connectionless Transport:
      - UDP
      - Reliable data transfer and TCP
      - Congestion avoidance
      - 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



- ATM
- MPLS
- Physical & Link Layer Functionalities
  - Error Detection & Control
  - ARQ
  - Link layer addressing
  - LAN Technologies
  - Bridges and Hubs
  - Multiple Access
- Special topics
  - Security
  - Overlay networks
  - Naming
  - Content distribution networks
  - Peer to peer systems
  - DHTs
  - Network Attacks

### **III. Operating Systems**

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

## Section-B (50 Marks)

### IV. Database Systems

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

### V. Digital Image Processing

- The relation between Image Processing
- Computer Graphics
- Computer Vision and Artificial Intelligence
- Image Sensing and Acquisition Techniques
- Representing Digital Image
- Image Sampling and Quantization
- Image Storage and Operations
- Image Transformations (Translation, Scaling, Rotation, Shear); Image Histogram
- Image Enhancement (Contrast, Smoothing, Sharpening); Gray-scale and Color Images

- Color Models (RGB, CMYK and HIS)
- Image Restoration
- Noise Models
- Morphological Operators (Erosion, Dilation, Opening, Closing, Skeletonization, Thinning)
- Image Segmentation
- Point Detection
- Line Detection
- Edge Detection and Boundary Detection
- Image Compression

## **VI. Web Engineering & Technologies**

- Modeling techniques for web applications
- Introduction to web engineering
- requirement engineering
- Requirement
  - Types of requirements
    - Functional requirements
    - Non functional requirements
- Requirement engineering process
  - Elicitation and negotiation
  - Documentation
  - Validation and verification
  - Management
- HTML(hypertext markup language)
- Software Architecture
  - Styles
  - Patterns
  - Frameworks
- Components of Web Architecture
- Classifications of web architecture
- Web Application layered architecture
  - Client server
  - N- layered
  - JSP model

- Struts
  - OOHDM
- Integration Architecture
- Data Aspect architectures
- Cascading Style Sheet(CSS)
  - CSS properties
- JavaScript
  - Functionalities
  - Events
  - Variables
  - Operators
- DOM(Document Object Model)
- XML
- RSS
- API
- Client-side programming using
  - HTML
  - XHTML
  - XML
  - JavaScript
  - CSS
- Serverside programming using PHP
- Web development process
- Web Application Development Methodologies
- Website promotion and deployment
- Web applications Issues
  - Accessibility
  - Testing
  - Performance
  - Operation
  - Maintenance
  - Security



## SUGGESTED READINGS

1. C++ How to Program Harvey M. Deitel and Paul J. Deitel.
2. Compilers: Principles, Techniques, and Tools **BY** Alfred V. Aho, Ravi Sethi, and Jeffrey D. Ullman
3. Operating System Concepts **BY** Silberschatz, Galvin, and Gagne. John
4. Operating Systems **BY** William Stallings
5. Computer Organization & Architecture **BY** William Stallings
6. Computer System Architecture **BY** M. Morris Mano
7. Computer Organization and Design: The Hardware/ Software Interface **BY** David A. Patterson and John L. Hennessy
8. Software Engineering **BY** Ian Sommerville
9. Software Engineering A Practitioner's Approach **BY** Roger S. Pressman
10. Data Structures and Algorithm Analysis in C++ **BY** Mark Allen Weiss
11. Computer Networking: A Top Down approach featuring the Internet **BY** James F. Kurose and Keith W. Ross
12. Data and Computer Communications **BY** William Stallings
13. Computer Networks **BY** Andrew Tanenbaum
14. Fundamentals of Database Systems **BY** Ramez Elmasri and S. B
15. Database Systems Concepts **BY** Silberchatz, Abraham & Korth, Sudarshan
16. Web Services: Principles and Technology **BY** Michael Papazoglu
17. Electronic Commerce: The Second Wave, Ninth Edition **BY** Gary P. Schneider
18. Electronic-Commerce –A Managerial Perspective **BY** Turban, Lee, King, Chung
19. Web Engineering **BY** Kappel, G., Proll, B. Reich, S. & Retschitzegger
20. Styling Web Pages with CSS **BY** Tom Negrino and Dori Smith
21. PHP: The Good Parts **BY** Peter B. MacIntyre
22. Learn JavaScript **BY** Chuck Easttom
23. ADTs, Data Structures, and Problem Solving with C++ **BY** Larry R. Nayhoff
24. Digital Image Processing Gonzalez and Woods

## **POLITICAL SCIENCE (200 Marks)**

### **Paper-I (MARKS-100)**

#### **Part-A (50 Marks)**

##### **I. Western Political Thought**

- Plato
- Aristotle
- Machiavelli
- Montesquieu
- Hobbes
- Locke
- Rousseau
- Kant
- Mill
- Bentham
- Hegel
- Marx
- Lenin
- Mao
- Gramsci
- Karl Popper
- Pierre Bourdieu
- John Rawls
- Frances Fukuyama

- Foucault
- Derrida
- Kierkegaard
- Jean Paul Sartre
- Rene Descartes

## **II. Muslim Political Thought**

- Al-Farabi
- Al-Mawardi
- Ibn Rushd
- Imam Ghazali
- Ibn Taymiyyah
- Nizam-ul-MulkTusi
- Ibn Khaldun
- Shah Waliullah
- Allama Muhammad Iqbal
- Jamaluddin Afghni
- Rashid Rida



### **Part-A (50 Marks)**

## **III. State System**

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

## **IV. Political Concept (Western and Islamic)**

- Sovereignty
- Justice
- Law
- Liberty
- Freedom
- Equality

- Rights and Duties
- Human Rights
- Political Authority and Power

#### **V. Comparative Politics**

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

#### **VI. Political Participation**

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

#### **VII. Political Institutions and Role of Government**

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

#### **VIII. Forms of Government**

- Monarchy
- Democratic



- Dictatorship
- Totalitarian/Authoritarian
- Unitary
- Federal
- Confederation
- Presidential and Parliamentary

#### **IX. Political Ideologies**

- Capitalism
- Marxism
- Communism
- Socialism
- Totalitarianism
- Fascism
- Nationalism
- Islamic Political Ideology

#### **X. Local Self Government**

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

**Paper-I (MARKS-100)**

## **Part-A (30 Marks)**

### **I. Comparative and Analytical Study of the Political Systems**

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

### **II. Global and Regional Integration**

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

## **Part-B (70 Marks)**

### **III. Comparative and Analytical Study of the Political Systems**

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

### **IV. Political Movements in India (Colonial Period)**

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

### **V. Government and Politics in Pakistan**

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

- Political Developments and the Role of Civil and Military Bureaucracy
- Judiciary
- Feudalism
- Dynastic Politics
- Political Parties and Interest Groups
- Elections and Voting Behavior
- Religion and Politics
- Ethnicity and National Integration

## **VI. International Relations**

- History of International Relations: Post World War-II (WW-II) Period
- Foreign Policy of Pakistan
  - National Interests and Major Determinants
    - 1). Size/Geography
    - 2). Economic Development
    - 3). Security
    - 4). Advancement in Technology
    - 5). National Capacity
    - 6). Political Parties/Leadership
    - 7). Ideology
    - 8). National Interest
    - 9). Role of Press/Bureaucracy
    - 10). Social Structure
    - 11). Public Opinion
    - 12). Diplomacy.
    - 13). Foreign Policy-making Process in Pakistan
- Also External Factors like
  - International Power Structure
  - International Organizations
  - World Public Opinion and Reaction of other States

## SUGGESTED READINGS

1. Pakistan's Foreign Policy, 1947-2005 **BY** Abdul Sattar
2. Democracy and Authoritarianism in South Asia **BY** Ayesha Jalal
3. Military, Civil Society and Democratization in Pakistan **BY** Akbar Zaidi
4. The Reconstruction of Religious Thought in Islam **BY** Allama Iqbal
5. A history of Pakistan and its origins **BY** Christophe Jaffrelot
6. Greek Political Thought: Plato & Aristotle **BY** Earnest Barker
7. Political Thought From Plato to Present **BY** Ebenstein
8. Political Thought in Medieval Islam **BY** Erwin I.J. Rosenthal
9. Constitutional Developments in Pakistan **BY** G.W.Choudhury
10. Comparative Politics Today: A Theoretical Framework **BY** Gabriel A. Almond, G.Bingham Powell
11. Contemporary Political Analysis **BY** Garles Worth James
12. A History of Political Theory **BY** George Holland Sabine
13. Studies in Muslim Political Thought and Administration **BY** H K Sherwani
14. Modern Islamic Political Thought **BY** Hamid Enayat
15. Constitutional and Political History of Pakistan **BY** Hamid Khan
16. Politics Among Nations: The Struggle for Power and Peace **BY** Hans J. Morgenthau
17. Military and Politics in Pakistan **BY** Hasan Askari Rizvi
18. Pakistan Foreign Policy: An Overview 1947-2004 (PILDAT) **BY** Hasan Askari Rizvi
19. Pakistan and Geostrategic Environment : A Study of Foreign Policy **BY** Hasan Askari Rizvi
20. International Politics: A Framework for Analysis **BY** Holsti, K.J.
21. Pakistan: A Modern History **BY** Lan Talbot
22. 21st Century Political Science: A Reference Handbook **BY** John T.Ishiyama, Marijke Breuning,
23. Political Thought from Plato to Present **BY** Judd Herman
24. The Political System of Pakistan, **BY** K.B.Sayeed
25. Pakistan: A Political Study Keith Callard,
26. Pakistan: An Enigma of Political Development **BY** Lawrance Ziring
27. Pakistan in the Twentieth Century **BY** Lawrance Ziring
28. Pakistan: At the Crosscurrent of History **BY** Lawrance Ziring

29. History of Muslim Philosophy **BY** M M.Sharif
30. History of Local Government in Pakistan **BY** Masudul Hasan
31. Nationalism: The Nation-State and Nationalism **BY** Monserrat Guibernau
32. Politics and the State in Pakistan **BY** Muhammad Waseem
33. Government and Politics in Pakistan **BY** Mushtaq Ahmad
34. Making of Pakistan **BY** Noor ul Haq
35. Pattern of Government Samuel **BY** H. Beer & Adam B. Ullam
36. Political Thinkers: From Socrates to the Present **BY** Paul Kelly (Ed)
37. Introduction to Political Science, Islamabad, National Book Foundation, **BY** Rodee Anderson etc.
38. Pakistan's Foreign Policy : An Historical Analysis **BY** S.M. Burke
39. State & Society in Pakistan **BY** Shahid Javed Burki
40. Islami Riyasat **BY** Syed Abul Aala Maudoodi
41. Khilafat O Malookeyat **BY** Syed Abul Aala Maudoodi
42. Ethno National Movements of Pakistan **BY** Tahir Amin
43. Politics, Parties and Pressure Groups **BY** V.O. Key Jr.
44. Democratization in Pakistan **BY** Waseem, M.
45. Contemporary Political Philosophy: An Introduction **BY** Will Kymlicka
46. History of Political Theories (Three Volumes) **BY** Willaim A. Dunning
47. International Relations: Politics and Economy in the 21st Century **BY** William Nester

By: ZH Softs

# **INTERNATIONAL RELATIONS (200 Marks)**

## **Paper-I (MARKS-100)**

### **I. Introduction**

- The Definition and Scope of International Relations
- The Nation-State System
- Evolution of International Society

### **II. Theories and Approaches**

- The Classical Approaches-Realism and Idealism
- The Scientific Revolution-Behavioral Approach, System Approach
- Neo-realism, Neo-liberalism
- Post-modernism, Critical Theory, Feminism, Constructivism

### **III. International Political Security**

- Conceptualization of security in the Twenty-First century
- Power. Elements of National Power
- Balance of Power
- Foreign Policy: Determinants, Decision Making and Analysis
- Sovereignty
- National Interest

#### **IV. Strategic Approach to International Relation**

- War: Causation of War, Total War, Limited War, Asymmetric Warfare, Civil War, Guerilla Warfare
- Strategic Culture: Determinants of Pakistani Strategic Culture
- Deterrence: Theory and practice with special reference to India and Pakistan

#### **V. International Political Economy**

- Theories in IPE: Mercantilism, Economic Liberalism, and Neo-Marxism
- Theories of Imperialism, Dependence and Interdependence discourse

#### **VI. International political community**

- Nationalism
- Internationalism
- Globalization

#### **VII. Approaches to Peace**

- Diplomacy
- International Law
- Arms Control /Disarmament and Nuclear Non proliferation Regime

#### **VIII. International Political Institution**

- United Nations
- International Monetary Fund (IMF)
- World Bank
- International Court of Justice

## **Paper-II (MARKS-100)**

### **I. International Relation between two Wars**

- Russian Revolution, Fascism, League of Nations, Second World War

### **II. Cold War**

- Decolonization in Asia and Africa
- Rise of United States and Soviet Union
- Era of Tight Bipolarity, Détente and Loose Bipolarity, Revival of Cold War

### **III. Post Cold War**

- End of History, Clash of Civilizations, Terrorism, Globalization, Unipolarity (New World Order) and Revival of Multi-Polarity

### **IV. International and Regional Organizations**

- League of Nations, United Nations, Regional Organizations, EU, ASEAN, NAFTA, SAARC, SCO, OIC, ECO, WTO
- Reforms in the United Nations, World Bank and the IMF

### **V. Foreign Policy of Selected Countries**

- USA, Russia, China, UK, India, Pakistan and EU

### **VI. South Asia**

- Peace-making and Peace-Building in South Asia: Analytical overview of peace processes between/among the states of South Asia especially between India and Pakistan



- India and Pakistan: Overview of agreements and accords, Indus Water Treaty; Composite Dialogue; Sir Creek & Siachen border, Visa and People to people contact; Trade; and Role of civil society
- Afghanistan: Cold war theatre; Soviet Invasion and Mujahedeen; Geneva Accord; Post Cold War situation---Rise of Taliban, AL-Qeada & 9/11; Operation Enduring Freedom; The Bonn Process-Withdrawal

## **VII. Weapons of Mass Destruction**

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

## **VIII. Contemporary Issues**

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

## **SUGGESTED READINGS**

1. World Politics: Trend and Transformation, Ninth Edition **BY** Charles W. Kegley JR. and Eugene R Wittkopf

2. Understanding International Relations, Second Edition **BY** Chris Brown
3. Politics Among Nations **BY** Hans j. Morgenthau
4. International Politics: A Framework for Analysis **BY** Holsti, K.J.
5. Contemporary Security and Strategy **BY** Craig A. Snyder (ed.),
6. The Globalization of World Politics: An Introduction to International Relations **BY** John Baylis and Stev Smith, eds
7. Games Nations Play, Seventh Edition **BY** John Spanier
8. Essentials readings in World Politics **BY** Karen Mingst
9. World in Collision: Terror and the Future of Global Order **BY** Ken Booth and Tim Dunne, ed
10. Theory of International Politics **BY** Kenneth N. Waltz
11. Theories of International Relations **BY** Scott Burchill and Andrew Linklater
12. The Cause of Wars **BY** Michael Howard
13. Politics of Nuclear Weapons in south Asia **BY** Bhumitra Chakma, ed
14. The Twenty Year's Crisis ; 1919-1939: An Introduction to the Study of International Relation **BY** E.H. Carr
15. Bomb Scare: The History and Future of Nuclear Weapons **BY** Joseph Cirincione
16. Arms Control: The New Guide to Negotiations and Agreements **BY** Jozef Goldblat
17. Explaining Foreign Policy **BY** Llyod Jenson
18. The International Politics of Space **BY** Michael Sheehan
19. Foreign Policy Making Process: A Case Study of Pakistan **BY** Moonis Ahmar, ed
20. Planning the Unthinkable How New Powers Will Use Nuclear Biological And Chemical Weapons **BY** Peter R. Lavoy, Scott D. Sagan, and James J. Wirtz
21. Pakistan's Foreign Policy : An Historical Analysis **BY** S.M. Burke
22. International Relations: Politics and Economy in the 21st Century **BY** William Nester
23. Foreign Policy and Political process **BY** William Wallace
24. Nuclear Risk Reduction Measures and Restraint Regime in South **BY** Asia Zafar Nawaz Jaspal
25. The India- Pakistan Military Standoff; Crisis and Escalation in South Asia United States **BY** Zachary S. Davis, ed
26. Nuclear Pakistan: Strategic Dimensions **BY** Zulfiqar Khan, ed

**Subject Wise Notes will be provided here**  
**soon through CSS-Guide APP by ZH Softs**

