

नेपाल स्टक एक्सचेञ्ज लिमिटेड
प्राविधिक सेवा, तह ६, आई. टी. अधिकृत पदको खुला र आन्तरिक प्रतियोगितात्मक परीक्षाको पाठ्यक्रम
एवं परीक्षा योजना

पाठ्यक्रमको रूपरेखा :- यस पाठ्यक्रमको आधारमा निम्नानुसार चरणमा परीक्षा लिइने छ :

प्रथम चरण :- लिखित परीक्षा	पूर्णाङ्क :- १५०
द्वितीय चरण :- (क) प्रयोगात्मक परीक्षा	पूर्णाङ्क :- ५०
(ख) अन्तर्वार्ता	पूर्णाङ्क :- ३०

१. प्रथम चरण : - लिखित परीक्षा

पूर्णाङ्क :- १५०

पत्र	विषय	पूर्णाङ्क	उतीर्णाङ्क	परीक्षा प्रणाली		प्रश्नसंख्या X अङ्क	समय
प्रथम	Information Technology	५०	२०	वस्तुगत	बहुवैकल्पिक प्रश्न	५० प्रश्न X १ अङ्क	१ घण्टा
द्वितीय	& Related Legislations	१००	४०	विषयगत	छोटो उत्तर लामो उत्तर	८ प्रश्न X ५ अङ्क ६ प्रश्न X १० अङ्क	३ घण्टा

२. द्वितीय चरण : - प्रयोगात्मक परीक्षा र अन्तर्वार्ता

पूर्णाङ्क :- ८०

विषय	पूर्णाङ्क	उतीर्णाङ्क	परीक्षा प्रणाली	समय
(क) प्रयोगात्मक परीक्षा	५०	२५	प्रयोगात्मक	१ घण्टा
(ख) अन्तर्वार्ता	३०	-	मौखिक	-

द्रष्टव्य :

- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी वा दुवै हुन सक्नेछ ।
- प्रथम र द्वितीय पत्रको पत्रको विषयवस्तु एउटै हुनेछ ।
- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- लिखित परीक्षामा यथासम्भव पाठ्यक्रमका सबै एकाईवाट प्रश्नहरु सोधिनेछ ।
- वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरुको गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्क कट्टा गरिनेछ । तर उत्तर नदिएमा त्यस बापत अङ्क दिइने छैन र अङ्क कट्टा पनि गरिने छैन ।
- विषयगत प्रश्नमा प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरु हुनेछन् । परिक्षार्थीले प्रत्येक खण्डका प्रश्नहरुको उत्तर सोही खण्डका उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
- यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम तथा नीतिहरु परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
- प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरुलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ ।
- पाठ्यक्रम लागू मिति :-

प्रथम र द्वितीय पत्र :- Information Technology & Related Legislations

1. Introduction of Computer and Architecture

- 1.1 Computer System and Types of Computer.
- 1.2 Components and Architecture of Computers
- 1.3 Input Devices: Keyboard, Mouse, other input devices
- 1.4 Processor: ALU, CU, Registers
- 1.5 Memory : Primary and Secondary Memory
- 1.6 Storages devices: Hard Drive, USB Devices and other Storage Devices
- 1.7 Output devices: Monitors, Printers

2. Digital Logic and Number System

- 2.1 Digital and Analog Systems
- 2.2 Binary, Octal, Decimal and Hexadecimal Number System
- 2.3 Logic gates
- 2.4 Combinational Logic Circuits
- 2.5 Sequential Logic Circuits

3. Programming concept and Data structure

- 3.1 Concept of Procedural Programming, Declarative Programming, Structural Programming and Object-Oriented Programming.
- 3.2 Concept of Algorithm, Flowchart and Pseudo code
- 3.3 Concept of C programming, C++ Programming,
- 3.4 Basic Concept of control, loop, array and function
- 3.5 Introduction of Data structure and Abstract data Type
- 3.6 Linear data structures
- 3.7 Trees: General and binary trees, Representations and traversals
- 3.8 Exhaustive search, Divide and conquer
- 3.9 Sorting

4. Operating system

- 4.1 Function of Operating System
- 4.2 CPU scheduling and scheduling algorithm
- 4.3 Deadlock detection and prevention
- 4.4 Memory Management
- 4.5 Virtual memory management
- 4.6 Windows and Linux based networking architecture
- 4.7 Monitoring and Troubleshooting Windows and Linux network
- 4.8 Users, Groups and Permission on Linux and Windows.

5. Database Management System

- 5.1 Introduction of Database,
- 5.2 Database Model: Relational Database Model, E-R Model
- 5.3 Database Design: Logical Design, Conceptual Design, Mapping Conceptual to Logical,
- 5.4 Normalization: 1NF, 2NF, 3NF, BCNF
- 5.5 The relational algebra
- 5.6 Architecture of DBMS: Client-server, Open Architectures
- 5.7 Transaction Processing, Multi-User & Concurrency, and Backup & Recovery Database.
- 5.8 Basic SQL statement: DDL, DML, DCL
- 5.9 Restricting and Sorting data
- 5.10 Displaying Data from Multiple Tables
- 5.11 Creating Views and Controlling User Access
- 5.12 Basic Concept of major RDBMS products: Oracle, Sybase, DB2, SQL Server and MYSQL
- 5.13 Introduction of Big Data

6. Management Information System

- 6.1 Information Technology and Organization
- 6.2 Information Systems and Decision Making.
- 6.3 Data Mining, Data Warehousing
- 6.4 OLAP and OLTP

7. Software Engineering

- 7.1 Software and Software Engineering
- 7.2 Software development Model: Waterfall, RAD, Spiral, RUP, Agile
- 7.3 System Requirement Specification (SRS)
- 7.4 Feasibility Analysis
- 7.5 System Design: DFD, E-R Diagram, Use case, Class Diagram, Sequence Diagram
- 7.6 Software Testing, Validation and Verification
- 7.7 Configuration Management

8. Computer Network

- 8.1 Network Definition, Network Models, Network Topology, Network Addressing.
- 8.2 Network Connectivity: Data Communication Media
- 8.3 The Data Package, Establishing a Connection, Reliable Delivery, Network Connectivity, Noise Control, Building Codes, Connection Devices.
- 8.4 The OSI reference model

- 8.5 Common Network Protocols
- 8.6 TCP/IP Protocol
- 8.7 Network LAN Infrastructure
- 8.8 Remote Networking: Remote Networking, Remote Access protocols, VPN Technologies
- 8.9 Network Security: Introduction, Virus Protection, Local Security, Network Access, Internet Security
- 8.10 Disaster Recovery: The need for Disaster Recovery, Disaster Recovery plan, Data backup, Fault Tolerance.
- 8.11 Network Troubleshooting: Using Systematic Approach to Troubleshooting.
- 8.12 Network Support Tools: Utilities, the Network Baseline

9. Emerging Technology and Security Threat

- 9.1 Artificial Intelligence: Expert system, Neural Network
- 9.2 E-commerce: EDI, Cryptography
- 9.3 GIS, Remote sensing and GPS
- 9.4 Web 2.0 and Virtual meeting
- 9.5 Mobile computing
- 9.6 Security and privacy
- 9.7 Computer Virus
- 9.8 Cyber Crime
- 9.9 Social Media Threat
- 9.10 Computer Ethics

10. Theory of Computation

- 10.1 BNF, Languages, Grammars
- 10.2 DFA, NDFAs, regular expressions, regular grammars
- 10.3 Closure, Pigeonhole principle
- 10.4 CFGs, Pushdown Automata
- 10.5 Turing Machines
- 10.6 The Chomsky hierarchy, Undecidable problems
- 10.7 Complexity Theory, P and NP

11. Capital market, law and policy

- 10.1 Basic concept of Capital Market
- 10.2 Role of NEPSE in Capital Market
- 10.3 Primary and Secondary Market
- 10.4 Calculation of NEPSE Index
- 10.5 Trading Terminology
- 10.6 Securities Act, 2063
- 10.7 Securities Board Regulation, 2064

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- 10.8 Stock Exchange Operation Regulation, 2064
- 10.9 Securities' Central Depository Services Regulation, 2067
- 10.10 CDSC Bylaws, 2068
- 10.11 Electronic Transaction Act, 2063
- 10.12 Government Securities Transaction Bylaws of NEPSE, 2062
- 10.13 IT Policy, 2067

Part B: Practical Exam

- 1. Linux or Window sever Configuration
- 2. Web server Concept
- 3. LAN Network troubleshoot
- 4. DBMS configuration and Data Handling