नेपाल टेलिभिजन
सिंहदरबार

प्राविधिक सेवा, प्रा.विविध समूह, कम्प्युटरउपसमूह, तह ६ कम्प्युटरअधिकृत पदको खुलाप्रतियोगितात्मक परीक्षाको लागि पाठ्यक्रम एवं परीक्षा योजना (परिमार्जित मिति २०७६/११/२७)

पाठ्यक्रमको रुपरेखा :– यस पाठ्यक्रमको आधारमानिम्नानुसार चरणमा परीक्षालिइने छ :

प्रथम चरण :– लिखित परीक्षा   पूर्णाङ्क :– २००

द्वितीय चरण :– (क) प्रयोगात्मक   पूर्णाङ्क :– १००

　　　　　　　 (ख) अन्तर्वार्ता   पूर्णाङ्क :– ३०

१.प्रथमचरणः – लिखितपरीक्षा   पूर्णाङ्क :– २००

पत्र	विषय	पूर्णाङ्क	उतीर्णाङ्क	परीक्षा प्रणाली		प्रश्नसंख्या×अङ्क	समय
प्रथम	विषयगत ज्ञान र कानून	१००	४०	विषयगत	छोटो उत्तर	४प्रश्न×५अङ्क	३ घण्टा
					लामो उत्तर	८प्रश्न×१० अङ्क	
द्वितीय	सेवा समूहसम्बन्धी	१००	४०	विषयगत	छोटो उत्तर	४प्रश्न×५अङ्क	३ घण्टा
					लामो उत्तर	८प्रश्न×१० अङ्क	

२. द्वितीय चरण : –प्रयोगात्मक परीक्षा र अन्तर्वार्ता   पूर्णाङ्क : १०० र ३०

विषय	पूर्णाङ्क	उतीर्णाङ्क	परीक्षा प्रणाली	समय
प्रयोगात्मक परीक्षा	१००	५०	प्रयोगात्मक	१ घण्टा ३० मिनेट
अन्तर्वार्ता	३०	-	मौखिक	

द्रष्टव्य :

१. लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी वा दुवै हुन सक्नेछ ।

२. प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।

३. लिखित परीक्षामा यथासम्भव पाठ्यक्रमका सबै एकाईबाट प्रश्नहरु सोधिनेछ ।

४. विषयगत प्रश्नमा प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरु हुनेछन् । परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरुको उत्तर सोही खण्डका उत्तरपुस्तिकामा लेख्नुपर्नेछ ।

५. यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भएतापनि पाठ्यक्रममा परेका कानून, ऐन, नियम, विनियम तथा नीतिहरु परीक्षाको मितिभन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्भन्नु पर्दछ ।

६. प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरुलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ ।

७. प्रयोगात्मक परीक्षाका प्रश्न संख्या निम्नानुसार हुनेछन् ।

प्रयोगात्मक परीक्षाको एकाई	प्रश्न संख्या
Operating Systems	1
Database Management System and Design	2
Programming Language	1
Networking	1

८. पाठ्यक्रमलागू मिति :–

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प्राविधिक सेवा, प्राविधिकविविध समूह, कम्प्युटरउपसमूह, तह ६, कम्प्युटर अधिकृत पदको खुलाप्रतियोगितात्मक परीक्षाको लागि पाठ्यक्रम

प्रथम पत्र : विषयगत ज्ञान र कानून

खण्ड (क) - ५० अङ्क

१. विषयगत ज्ञान

१.१ विश्वमा टेलिभिजन प्रविधि तथा प्रसारणको विकासक्रम : Terresterial, Cable, Satellite, IP.

१.२ नेपालमा टेलिभिजन प्रसारणको विकास र विस्तार

१.३ नेपालमा टेलिभिजन प्रसारणको वर्तमान अवस्था

१.४ टेलिभिजन प्रसारणका अन्तरवस्तु र प्रभाव

१.५ नेपाल टेलिभिजन संस्थान, सञ्चार तथा सूचना प्रविधि मन्त्रालय र अन्य निकायहरु बीचको अन्तरसम्बन्ध

१.६ सार्वजनिक सेवा प्रसारण (Public Service Broadcasting), सरकारी सञ्चार माध्यम (State Run media), निजी एवम् व्यापारिक प्रसारण (Private & Corporate Broadcasting) र सामुदायिक प्रसारण (Community Broadcasting) र तिनका विशेषताहरु, समानता र भिन्नता

१.७ प्रसारण व्यवस्थापन (Broadcasting Management)

१.८ टेलिभिजन क्षेत्रसँग सम्बन्धित अन्तर्राष्ट्रिय संस्थाहरु : Asia-Pacific Broadcasting Union (ABU), Asia-Pacific Institute for Broadcasting Development (AIBD) तथा समाचार एजेन्सीहरु

१.९ नेपाल टेलिभिजन संस्थान कर्मचारी सेवा शर्त विनियमावली,२०५५ (आठौं संशोधन, २०७६ सहित)

१.१० नेपाल टेलिभिजन आर्थिक प्रशासन सम्बन्धी (प्रथम संशोधन,२०७५) विनियमावली, २०६६

१.११ नेपाल टेलिभिजन संस्थानबाट जारी निर्देशिका तथा मापदण्डहरु

खण्ड (ख) - ५० अङ्क

२. सम्बन्धित कानूनहरु (अङ्क ३०)

२.१ नेपालको संविधान

२.२ सञ्चार संस्थान ऐन, २०२८

२.३ राष्ट्रिय प्रसारण ऐन, २०४९ तथा नियमावली, २०५२

२.४ सार्वजनिक खरिद ऐन, २०६३

२.५ विज्ञापन (नियमन गर्ने) ऐन, २०७६

२.६ सूचना तथा सञ्चार प्रविधि नीति, २०७२

२.७ विद्युतीय कारोबार ऐन, २०६३

२.८ प्रतिलिपि अधिकार ऐन, २०५९ तथा नियमावली, २०६१

३. व्यवस्थापन (अङ्क २०)

३.१ व्यवस्थापनको अवधारणा, उद्देश्य, कार्यक्षेत्र र चुनौतिहरु

३.२ व्यवस्थापनका विभिन्न पक्षहरु : नेतृत्व, उत्प्रेरणा, मनोबल (Morale)

३.३ कम्प्युटरको सुरक्षा

३.४ समूहगत कार्य (Team Works) : प्रशासनिक जनशक्ति, प्राविधिक जनशक्ति आदि

द्वितीयपत्र : सेवा सम्बन्धी

खण्ड (क) – ५० अङ्क

1. **Computer Fundamentals**
   1.1 Types of Computers in respect of size and function
   1.2 Generation of Computers
   1.3 Architecture and Components of Computers
   1.4 Input Devices: keyboard, mouse, other input devices
   1.5 Processing: CPU, ALU, Memory
   1.6 Storages devices: Storage Devices, Floppy Disk Drive, Hard Drive/SSD, NAS, Online Storage/Cloud Storage, Universal Serial Bus (USB) Devices and Other Storage Devices
   1.7 Output devices: Monitors, Printers, Modems, Soundboards, Projectors
   1.8 Operating System: DOS, Windows, Program Manager, Desktop, File Manager
   1.9 Software: Type of Software- System, Application, Utility, etc.
   1.10 Internet: E-mails, Internet, Intranet, Extranets, HTTP
   1.11 Computer Security: Computer Virus, Worm, Trojan Horse

2. **Data Structure and Algorithms**
   2.1 Fundamental of Data Structures
   2.2 Algorithm Basics
   2.3 Analysis of Simple Recursive and Nonrecursive Algorithms
   2.4 Searching, Merging and Sorting Algorithms
   2.5 Linked Lists, Stacks and Queues
   2.6 Trees Data Structure, Binary and Non-binary Tree
   2.7 Hash Functions

3. **Programming Language**
   3.1 The role of Language in Programming Process
   3.2 Programming Paradigm
   3.3 Programming Language Types (High Level/Low Level)
   3.4 Assembler/Interpreter/Compilers
   3.5 Concept of Procedural Programming, Structural Programming, Object-Oriented Programming.
   3.6 Concept of programming in C, C++, etc.
   3.7 Java Programming for Declaration, Modularity, Storage Management, Software Development
   3.8 Programming Languages for Web – Server Side/Client Side Programming Languages

4. **System Analysis and Design**
   4.1 Definition of the System, System Owner, System User, System Designers and system Builders, System Analysts
   4.2 System life Cycle
   4.3 System Design Environment:
          4.3.1 Development Process
          4.3.2 Management Process
          4.3.3 System Structure

        4.3.4   Basic Component of Computer based Information System

        4.3.5   Personal/ Centralized/Distribution System

4.4   Finding the Problem, Evaluating the Proposal, Technical Feasibility, Operational Feasibility, and Economic Feasibility

4.5   Requirements analysis:

        4.5.1   Representing System Analysis Model

        4.5.2   Requirement Model

        4.5.3   Design Model

4.6   Development Process: Design Method

4.7   Entity Relationship Diagram (E-R Diagram):

        4.7.1   Notations, Entities: Strong Entities, Weak Entities,

        4.7.2   Attributes: Simple and Composite, Single Valued and Multiple Valued, Null and Derived Attribute

4.8   Relationship Sets: Degree of Relationship and Cardinality Relationship, Specialization, Generalization, Aggregation

4.9   Data Flow Diagrams (DFDs): Data flow Diagram, Symbol, Files or data store, External entities, Data flows

4.10 Describing System by Data Flow Diagram: Context diagram, Top level DFD, Expansion Level DFD, Conversions of Data

4.11 Object Modeling: Object-Oriented Concept, Object Structure, Object Feature, Class and Object

4.12 Representation: Association, Composition, Inheritance, Multiple Inheritances

4.13 Modeling: Use Case Diagram, State Diagram, Event Flow Diagram.

4.14 Documentation: Automatic and Manual System

खण्ड (ख) – ५० अङ्क

5.   **Operating Systems**

5.1   Definition, Development and Functions of Operating Systems

5.2   Basic components of the Operating Systems, Information Storage and Management Systems

5.3   Concepts of Parallel and Distributed Processing, Identify Security Threats to Operating Systems

5.4   Introduction to the Windows Family of Products, Unix Family of Products, Linux Family of Products

5.5   Introduction to Windows Networking

5.6   Windows Architecture, Linux Architecture
5.7   Troubleshooting Windows & Linux
5.8   Managing Network Printing
5.9   Managing Hard Disks and Partitions
5.10   Monitoring and Troubleshooting Windows
5.11   Users, Groups and Permission Linux and Windows

6.   **Database Management System and Design**
6.1   Concept of Database Management System
6.2   Database Management System Structure
6.3   Data Modeling, Types of Data Model
6.4   DBMS and RDBMS and Properties
6.5   SQL and Embedded SQL
6.6   Writing Basic SQL Query Statements
6.7   Sorting and Searching Data
6.8   Displaying Data from Multiple Tables
6.9   Aggregation Data Using Group Functions
6.10   Sub Queries, Manipulating Data and Creating &Managing Tables
6.11   Creating Views and Controlling User Access
6.12   Database Design: Logical Design, Conceptual Design, Mapping Conceptual to Logical, Pragmatic issues, Physical Design, Integrity and Correctness, Relational Algebra, Relational Calculus
6.13   Normalization
6.14   Architecture of DBMS: Client-server, Open Architectures, Transaction Processing, Multi-User & Concurrency, and Backup & Recovery Database
6.15   Basic Concept of major RDBMS products: Oracle, Sybase, DB2, SQL Server and other Databases

7.   **Networking**
7.1   Basic Network Theory: Network Definition, Network Models, Connectivity, Network Addressing.
7.2   Network Connectivity: Data Package, Establishing a Connection, Reliable Delivery, Network Connectivity, Noise Control, Building Codes, Connection Devices
7.3   Advanced Network Theory: OSI model, Ethernet, Network Resources, Token ring, FDDI, Wireless Networking
7.4   Common Network Protocols: Families of Protocols, NetBEUI, Bridge and Switches, TCP/IP Protocol, Building TCP/IP Network, TCP/IP Suite
7.5   TCP/IP Services: Dynamic Host Configuration Protocol, DNS Name Resolution, NetBIOS support, SNMP, TCP/IP Utilities, FTP
7.6   Network LAN Infrastructure: LAN Protocols on a Network, IP Routing, IP Routing Tables, Router Discovery Protocols, Data Movement in a Routed Network, Virtual LANs (VLANS)
7.7   Network WAN Infrastructure: WAN Environment, Wan Transmission Technologies, Wan Connectivity Devices, Voice Over Data Services
7.8   Remote Networking: Remote Networking, Remote Access protocols, VPN Technologies
7.9   Network Security: Introduction, Virus Protection, Local Security, Network Access, Internet Security

7.10   Disaster Recovery: Need for Disaster Recovery, Disaster Recovery plan, Data backup, Fault Tolerance

7.11   Advanced Data Storage Techniques: Enterprise Data Storage, Clustering, Network Attached Storage, Storage Area Networks

7.12   Network Troubleshooting: Using Systematic Approach to Troubleshooting.

7.13   Network Support Tools: Utilities, Network Baseline

7.14   Network Access Points, Common Network Component, Common Peripheral Ports

8. Computer Architecture & Organization

8.1   Evaluation of Computers, Design Methodology, Set Architecture, MIPS ISA, ALU Design

8.2   Datapath Design: Single and Multiple Cycle Implementations, Pipelining, Memory Hierarchy, Input/Output System: Bus & Role of Operating System

9. Complier Design

9.1   Introduction to Compiling

9.2   Logical Analysis, Syntax Analysis, Semantic Analysis

9.3   Run Time environment

9.4   Intermediate Code Generation, Code Optimization

9.5   Compiler Generation Tools

10. E-Commerce Technology

10.1   Introduction to E-Commerce

10.2   E-Commerce Strategies

10.3   E-Commerce Security Issues

10.4   Success Models of E-Governance

10.5   E-Business: b2b, b2c, b2e, c2c, g2g, g2c

10.6   Principles of Electronic Payment, Strategies & Systems

10.7   Digital Marketing/e-Marketing

10.8   E-Banking

10.9   Encryption and Decryption Methods

11. MIS and Web Engineering

11.1   Information Systems, Client-Server Computing

11.2   Information Systems and Decision Making

11.3   Database Design issues, Data Mining, Data Warehousing

11.4   Knowledge Management, The strategic use of Information Technology

11.5   Work Process Redesign (Reengineering) with Information Technology, Enterprise Resources Planning Systems, Information Systems Security, Information Privacy, and Global Information Technology issues

11.6   Software Supported Demonstrations including advanced Spreadsheet topics Software Component Based Systems (CBSE)

11.7   Multimedia and New Media

11.8   Object-Oriented Programming

11.9   Group Decision Support Systems

11.10   Basics of Website Design

12. IT in Nepal

12.1   History of IT in Nepal

12.2   Nepali Unicode/Nepali Fonts
12.3   Licensing Issues

प्रयोगात्मक परीक्षा
समय : १ घण्टा ३० मिनेट

1.   **Computer Software**
2.   **Graphics – Photoshop / IIIustrator**
3.   **2D Animation Colour Correction**
4.   **3D Animation (Maya or Max)**
5.   **Composition (After Effect)**
6.   **Computer Networking**