

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 रूपरेखा :- यस पाठ्यक्रमको आधारमानिम्नानुसार चरणमा परीक्षालिइने छ :

प्रथम चरण :- लिखित परीक्षा	पूर्णाङ्क :- २००
द्वितीय चरण :- (क) प्रयोगात्मक	पूर्णाङ्क :- १००
(ख) अन्तर्वार्ता	पूर्णाङ्क :- ३०

१.प्रथमचरण: - लिखितपरीक्षा

पूर्णाङ्क :- २००

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

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 :

- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी वा दुवै हुन सक्नेछ ।
- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- लिखित परीक्षामा यथासम्भव पाठ्यक्रमका सबै एकाईबाट प्रश्नहरु सोधिनेछ ।
- विषयगत प्रश्नमा प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरु हुनेछन् । परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरुको उत्तर सोही खण्डका उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
- 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 सम्झनु पर्दछ ।
- प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरुलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ ।
- 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

- पाठ्यक्रमलागू मिति :-

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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 : Terrestrial, 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 कारोवार 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

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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 Storage 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

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- 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

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- 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

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- 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. Compiler 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

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- 12.2 Nepali Unicode/Nepali Fonts  
12.3 Licensing Issues

प्रयोगात्मक परीक्षा  
समय : १ घण्टा ३० मिनेट

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