



प्राविधिक शिक्षा तथा व्यावसायिक तालीम परिषद्

**पदपूर्ति समिति**

सानोठिमी, भक्तपुर ।

प्राविधिक तथा प्रशिक्षण सेवा, इन्जिनियरिङ्ग प्राविधिक प्रशिक्षण समूह,  
इलेक्ट्रिकल उप-समूह अधिकृत स्तर तृतीय श्रेणी **विद्युत प्रशिक्षक पदको**  
खुला र आन्तरिक प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

सेवा : प्राविधिक तथा प्रशिक्षण	समूह : इन्जिनियरिङ्ग प्राविधिक प्रशिक्षण	उपसमूह : इलेक्ट्रिकल
पद : विद्युत प्रशिक्षक	स्तर : अधिकृत स्तर तृतीय	
पाठ्यक्रमको रूपरेखा : यस पाठ्यक्रमको आधारमा निम्नानुसार दुई चरणमा परीक्षा लिइनेछ :-		
प्रथम चरण : लिखित परीक्षा		पूर्णाङ्क : २००
द्वितीय चरण : (क) कम्प्युटर दक्षता परीक्षण		पूर्णाङ्क : १०
(ख) अन्तरवार्ता		पूर्णाङ्क : ३०

**तालीका १**

**प्रथम चरण : लिखित परीक्षा**

पत्र	विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली	प्रश्न संख्या X अंक भार	समय
प्रथम	खण्ड (क) सामान्य ज्ञान	२०	४०	बस्तुगत बहुवैकल्पिक प्रश्न (MCQS)	२० प्रश्न X १ अङ्क	१ घण्टा १ मिनेट
	खण्ड (ख) परिषद् सेवा सम्बन्धी कानूनी व्यवस्था	२०		बस्तुगत बहुवैकल्पिक प्रश्न (MCQS)	२० प्रश्न X १ अङ्क	
	खण्ड (ग) सेवा सम्बन्धी	६०		बस्तुगत बहुवैकल्पिक प्रश्न (MCQS)	६० प्रश्न X १ अङ्क	
द्वितीय	सेवा सम्बन्धी	१००	४०	विषयगत छोटो उत्तर र लामो उत्तर	८ प्रश्न X ५ अङ्क ६ प्रश्न X १० अङ्क	३ घण्टा

**तालीका २**

**द्वितीय चरण :**

विषय	पूर्णाङ्क	परीक्षा प्रणाली	समय
कम्प्युटर दक्षता परीक्षण	१०	प्रयोगात्मक (Practical)	२० मिनेट
अन्तरवार्ता	३०	मौखिक (Interview)	

माथि उल्लेखित प्रथम पत्रका परीक्षा एकै सिफ्टमा हुनेछ। खण्ड “ग” सेवा सम्बन्धी विषयको परीक्षा पश्चात खण्ड “क र ख” को बस्तुगत बहुवैकल्पिक परीक्षा हुनेछ। प्रथमपत्र र द्वितीयपत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ।

**द्रष्टव्य :**

- यो पाठ्यक्रमको योजनालाई प्रथम चरण र द्वितीय चरण गरी दुई भागमा विभाजन गरिएको छ।
- माथि उल्लेखित सेवा अन्तर्गतका समूह उप-समूहहरूको खुला/आन्तरिक प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम उपर्युक्त बमोजिम हुनेछ।
- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ।
- बस्तुगत बहुवैकल्पिक (Multiple choice) प्रश्नहरूको गलत उत्तर दिएका प्रत्येक गलत उत्तर वापत २० प्रतिशत अङ्क कट्टा गरिनेछ। तर उत्तर नदिएमा त्यस वापत अङ्क दिइने छैन र अङ्क पनि कट्टा गरिने छैन।
- बस्तुगत बहुउत्तर हुने परीक्षामा परीक्षार्थीले उत्तर लेख्दा अंग्रेजी ठूलो अक्षर (Capital letter) A,B,C,D मा लेख्नुपर्नेछ। सानो अक्षर (Small letter) a,b,c,d लेखेको वा अन्य कुनै संकेत गरेको भए सबै उत्तरपुस्तिका रद्द हुनेछ।
- बहुवैकल्पिक प्रश्नहरू हुने परीक्षामा कुनै प्रकारको क्याल्कुलेटर प्रयोग गर्न पाइने छैन।
- विषयगत प्रश्नका लागि तोकिएका अंकका हकमा एउटा लामो प्रश्न वा एउटै प्रश्नका दुई वा दुई भन्दा बढी भाग वा एउटै प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरू सोध्न सकिनेछ।
- परीक्षामा सोधिने प्रश्नसंख्या, अंक र अङ्कभार यथासम्भव सम्बन्धित पत्र /विषयमा दिईए अनुसार हुनेछ।
- परीक्षामा परीक्षार्थीले मोबाइल वा यस्तै प्रकारका विद्युतीय उपकरण परीक्षा हलमा लैजान पाइने छैन।
- विषयगत प्रश्न हुने पत्रका हकमा प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन्। परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोही खण्डको उत्तरपुस्तिकामा लेख्नु पर्नेछ।
- यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयबस्तुमा जेसुकै लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम तथा नीतिहरू परीक्षाको मितिभन्दा ३ (तीन) महिना अगाडि (संशोधन भएका वा संशोधन भई हटइएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ।
- प्रथम चरणको लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणमा सम्मिलित गराइनेछ।
- प्रथम चरणको लिखित परीक्षामा छनौट भएका उम्मेदवारहरूको प्राप्ताङ्क र द्वितीय चरणको कम्प्युटर परीक्षण र अन्तरवार्ताको कूल अङ्क योगका आधारमा अन्तिम परीक्षाफल प्रकाशित गरिनेछ।
- परीक्षा योजना र पाठ्यक्रम संशोधन मिति : २०७६/१०/०५ गते।
- यसभन्दा अगाडि लागू भएको माथि उल्लेखित पद, सेवा, समूह, उपसमूहको पाठ्यक्रम खारेज गरिएको छ।



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इलेक्ट्रिकल उप-समूह अधिकृत स्तर तृतीय श्रेणी **बिद्युत प्रशिक्षक पदको**  
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प्रथम पत्र : सामान्य ज्ञान, परिषद्को सेवा सम्बन्धित विषय र केही ऐन नियमहरू पूर्णांक : १००

### खण्ड क: सामान्य ज्ञान

२०x१ = २०

१. विश्वको प्रमुख ऐतिहासिक घटनाहरू ।
२. नेपालको इतिहास ।
३. नेपालको भूगोल ।
४. नेपालको आर्थिक, राजनीतिक, सामाजिक र सांस्कृतिक व्यवस्था ।
५. नेपालका प्रचलित धर्म, संस्कृति, जात जाति, भाषा, साहित्य र कला
६. खेलकूद तथा मनोरन्जन सम्बन्धी विविध जानकारी ।
७. विज्ञान र प्रविधि, प्रसिद्ध बैज्ञानिक र तिनको योगदान ।
८. वातावरण प्रदुषण तथा जलवायु परिवर्तन ।
९. अन्तर्राष्ट्रिय संघ संस्था (संयुक्त राष्ट्रसंघ, इयू, आसियान, विमष्टेक र सार्क)
१०. नेपालको बैदेशिक सम्बन्ध र परराष्ट्र नीति ।
११. राष्ट्रिय र अन्तर्राष्ट्रिय महत्वका समसामयिक घटना तथा नविनतम गतिविधिहरू ।
१२. दिगो विकासका लक्ष्यहरू ।

### खण्ड "ख" परिषद् सेवा सम्बन्धी र कानूनी व्यवस्था

२०x१ = २०

१. प्राविधिक शिक्षा तथा व्यावसायिक तालीम परिषद् ऐन, नियमावली तथा विनियमावलीहरू १०x१ = १०
  - १.१ प्राविधिक शिक्षा तथा व्यावसायिक तालीमको पृष्ठभूमि, लक्ष्य र उद्देश्य ।
  - १.२ प्राविधिक शिक्षा तथा व्यावसायिक तालिम परिषद् ऐन, २०४५ र नियमावली, २०५१ ।
  - १.३ प्राविधिक तथा व्यावसायिक शिक्षा एव तालिम नीति, २०६९ ।
  - १.४ प्राविधिक शिक्षा तथा व्यावसायिक तालिम परिषद्, कर्मचारी सेवा शर्त तथा सुविधा सम्बन्धी विनियमावली, २०६९ ।
  - १.५ प्राविधिक शिक्षा तथा व्यावसायिक तालिम परिषद्, आर्थिक प्रशासन सम्बन्धी विनियमावली, २०६२ ।

### २. सेवासँग सम्बन्धित कानूनी व्यवस्था

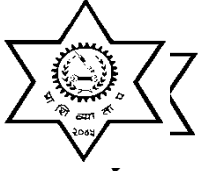
१०x१ = १०

- २.१ नेपालको संवैधानिक विकासक्रम र नेपालको संविधान ।
- २.२ चालु आवधिक योजना सम्बन्धी जानकारी ।
- २.३ राष्ट्रिय शिक्षा नीति, २०७६ ।
- २.४. भ्रष्टाचार निवारण ऐन, २०५९ ।
- २.५. स्थानीय सरकार संचालन ऐन, २०७४ ।
- २.६. सुशासन (संचालन तथा व्यवस्थापन) ऐन, २०६४ ।

### खण्ड ग: सेवा सम्बन्धी विषय

६०x१ = ६०

द्वितीय पत्रको सेवा सम्बन्धी विषयको पाठ्यक्रम नै प्रथम पत्रको खण्ड "ग" को सेवा सम्बन्धी विषयको पाठ्यक्रम हुनेछ ।



प्राविधिक शिक्षा तथा व्यावसायिक तालीम परिषद्

**पदपूर्ति समिति**

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प्राविधिक तथा प्रशिक्षण सेवा, इन्जिनियरिङ्ग प्राविधिक प्रशिक्षण समूह,  
इलेक्ट्रिकल उप-समूह अधिकृत स्तर तृतीय श्रेणी **बिद्युत प्रशिक्षक पदको**  
खुला र आन्तरिक प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

द्वितीय पत्र : सेवा सम्बन्धी विषय

पूर्णाङ्क- १००

1. **D.C Circuit Analysis**

- 1.1 Circuit elements: Resistor, Indicator and capacitor, Types of sources
- 1.2 Series and parallel circuits, voltage and current sources
- 1.3 Ohm's Law, Kirchoff's Law, Bridge circuit, Equivalent resistance and star delta transformation
- 1.4 DC Network Theorem: Loop Analysis, Nodal Analysis, Thevenin, Norton, Super position and Maximum power transfer
- 1.5 Transient response analysis of RLC circuit excited by D.C. source.

2. **AC Circuit Analysis**

- 2.1 Average value and Rms value
- 2.2 Active, reactive and apparent power, power factor (significance and correction)
- 2.3 Series and parallel RLC circuit, Resonance and Quality factor
- 2.4 Single and three phase system, delta and star connection, Measurement of three phase power
- 2.5 Transient response analysis of RLC circuit excited by A.C source.

3. **Electrical Machine**

- 3.1 Transformer: construction and working principle, ideal and real transformer, emf equation, equivalent circuit, losses and efficiency, voltage regulation, transformer on load and no-load operation, auto transformer and copper saving, Tests on transformer (polarity, no-load and load, back to back, temperature rise test), Three phase transformer, Constructional details and connection methods ( $\Delta/Y$ ,  $Y/Y$ ,  $\Delta/\Delta$ , open delta), Power and distribution transformer, Transformer inrush current and harmonics, transformer oil, efficiency curve and all day-efficiency, Importance of parallel operation, conditions of parallel operation of transformers, parallel operation of two single phase transformers, cooling methods of transformer.
- 3.2 DC machine: constructional details, commutation and armature reaction in DC generators and DC motors, factors affecting commutation, solutions for commutation problems, losses in a dc machine, efficiencies of dc motor and generator, condition of maximum efficiency, power flow diagram of dc machine  
DC Generator: Working principle, classification, types and various characteristics of DC generator, emf equation, Voltage build-up in shunt generator, application of dc generators and selection criteria  
DC Motor: Working principle, back emf and mechanical power developed, torque equations of dc motor, Shaft torque, Types of dc motor and their various characteristics, necessity of a starter, starting methods of dc motors, three and four point starters, methods of speed control of dc motors, Braking of dc motor and its importance, methods of electric braking of dc motors, application of dc motors and selection criteria, Universal motor
- 3.3 Induction motors: Constructional details and working principle of 3- phase induction motor, equivalent circuit, slip and rotor frequency, starting torque, maximum and full load torque, condition for maximum torque, torque-slip characteristics, losses and power flow diagram of induction motor, induction motor as a transformer, efficiency of motor and factors affecting efficiency, No-load test and blocked rotor test, necessity of starter and starting methods (Direct on-line,

star-delta starter, Autotransformer, slip ring starter), Various methods of speed control of induction motors, factors affecting performance of induction motor  
Single phase induction motor: Working principles, types of single phase induction motor based on starting methods, reluctance start induction motor, applications of 1-phase and 3-phase induction motors  
Induction Generators: working principle, necessity of capacitor bank, application of induction generators.

- 3.4 Alternators and Synchronous machine: construction and working principle of synchronous generator, emf equation, effect of harmonics and its elimination, armature reaction in synchronous generator, voltage regulation, power equation and power angle characteristics, Capability curve, Synchronous generator as source and sink of reactive power, Excitation system for synchronous generator (Static and brushless), Automatic voltage regulator (AVR), Effect of varying excitation current, Parallel operation of synchronous generator, Synchronization procedure and synchroscope, Working principle of synchronous motor, Hunting and its reduction, Application of synchronous motors, Reluctance and hysteresis single phase synchronous motors.
4. **Transmission and distribution**
  - 4.1 Choice of working voltage, economic size of line conductors, cost of conductor comparison between overhead and underground system, advantages and limitations of adopting high voltage for transmission, comparison between HVDC and HVAC transmission system
  - 4.2 Main components of overhead lines, single and double circuit, stranded and bundled conductors, Conductor materials and conductor spacing, earth wire, sag and tension calculation, clearance above ground, Types of insulators, corona and its reduction, skin and proximity effect, Ferranti effect, transposition and its significance, Corona and Radio Interference
  - 4.3 Classification of transmission lines (short, medium and long), ABCD constants, voltage regulation and efficiency, Transmission line as source and sink of reactive power, Surge Impedance loading (SIL), Reactive power and voltage control in the receiving end, Calculation of shunt capacitor and reactor for VAR compensation, Common FACTS devices and their implementation.
  - 4.4 Unsymmetrical faults and symmetrical faults, Single line to ground fault, line to line fault, double line to ground fault, transient and temporary overvoltages, counter measures to limit the overvoltages
  - 4.5 Distribution system: primary and secondary distribution, Classification, feeders and distributors, types of cable faults and its location
  - 4.6 HVDC transmission: HVDC station configuration (Filters, converters, Inverters), Reversible power flow and control in line, Series operation of converters
5. **Switchgear and protection**
  - 5.1 Faults and sources of faults
  - 5.2 Necessity of protection and basic requirements of protection system
  - 5.3 Fuse and its types, characteristics of HRC fuse
  - 5.4 MCB, MCCB characteristics and working principle
  - 5.5 Isolators and Contactors
  - 5.6 Circuit breaker, types of circuit breaker, operating principle and construction of ACB, ABCB, OCB, VCB and SFC circuit breaker, Application and Selection of circuit breakers, Testing of Circuit breakers
  - 5.7 Relays and its classification, PMMC, Buchholz relay, over current and earth fault relay, impedance relay and directional relay
  - 5.8 Protection schemes: differential and distance, under voltage, over current and earth fault protection, Lightning arrestor, its type and characteristics, tower footing resistance, shielding, grading rings
  - 5.9 Insulation Co-ordination, BIL and Volt-time characteristics of different equipments.

- 5.10 Earthing: Importance, factors affecting earthing, system and equipment earthing, safe value of current and voltage, step and touch potential, earthing mat, importance of neutral grounding and methods of neutral grounding, resonant grounding
6. **Power Plant**
- 6.1 Hydro Power Plant: layout and elements of hydro power plants, working principle, classification, merits and demerits, selection of site, mass curve and flow duration curve, hydro turbine: types, classification and selection.
- 6.2 Microhydro Power Plant (MHP): Role of MHP plant for rural development, Governor, Electronic and Discrete load controllers, Automatic voltage controller (AVR), start up and shut down procedure, Measurement of discharge and head at site, load factor, Diversity factor and utilization factor, load curve, load duration and energy load curve, Tariffs and its types, tariff system in Nepal
- 6.3 Diesel Power Plant: merits and demerits, Components of diesel power plant, Application of Diesel power plant
- 6.4 Steam Power Plant: merits and demerits, Components of steam power plant and general layout, Selection of site for steam power plant
- 6.5 Solar Power Plant: Solar cell and its types, Effect of temperature and Insolation on solar cells, Tubular and Flat plate batteries, Factors to be considered while choosing battery for a Solar PV system, Charge controllers and its types, Isolated and grid connected PV system, Importance of grid connection, Issues to be considered while connecting PV into grid
7. **Measurements and Instruments**
- 7.1 Classification of measuring instrument, Moving iron instruments, Moving coil instruments
- 7.2 Instrument transformers (CT, PT) and their characteristics
- 7.3 Wattmeters, power factor meters and single phase induction energy meter
- 7.4 DC/AC potentiometers and their applications
- 7.5 Megger, construction and working principle
- 7.6 Measurement of earth resistance and soil resistivity
- 7.7 Measurement of high ac and impulse voltages
8. **Power Electronics**
- 8.1 Power semiconductor devices: diode, transistor, thyristor, MOSFET, IGBT
- 8.2 Rectifiers: Half and full bridge
- 8.3 DC Choppers: classification, switching mode regulators (buck, boost and buck-boost)
- 8.4 Inverters: 1-ph and 3-ph inverters, PWM type inverters
- 8.5 AC voltage controller with resistive load and inductive load, Principle and operation of single phase cyclo-converters, Step-up and step down cyclo-converters
9. **Control system and controllers**
- 9.1 Feedback control system and its advantages, differential equation and transfer function of electrical circuits, speed control of armature controlled dc motor with feedback
- 9.2 Analogous system (mechanical and electrical) and its importance, Signal flow graph and block diagram reduction techniques
- 9.3 Effect of feedback on steady state gain, bandwidth, time constant, Different test signals
- 9.4 Time response of first and second order system to unit step input, transient response specifications, steady state error, static error constants
- 9.5 Controllers: Proportional, Integral, Derivative and their applications.
- 9.6 Root location and stability interpretation, effect of addition of poles and zeros on transfer function, R-H criteria and setting loop gain using R-H criteria
- 9.7 Programmable Logic Controllers and its working
10. **Utilization of Electrical Energy**

- 10.1 Load characteristics: load and diversity factor, base and peak load, load curve, load duration and energy load curve, power factor, causes of low power factor and its disadvantage, power factor improvement
- 10.2 Tariffs: types and factors affecting tariffs
- 10.3 Heating: resistance, induction and dielectric heating
- 10.4 Illumination: General terms, incandescent and discharge lamps, tungsten and filament lamps, fluorescent tubes, Types of lighting schemes, Design of lighting schemes and methods of lighting calculations.
- 10.5 Refrigeration and Air Conditioning: types and working principle.
11. **Power System Stability and Load Flow**
- 11.1 Power flow and power angle curve, swing equation and steady state and transient stability, factors affecting transient stability.
- 11.2 Equal Area criterion and its application, Critical clearing angle, Two finite machines.
- 11.3 Load flow analysis: Bus admittance matrix, Load flow equations and methods of solution, Approximate load flow study.
- 11.4 Gauss-Seidel, Newton Raphson and Fast-decoupled methods of load flow.
12. **Electrical Installation and Wiring**
- 12.1 General rules of wiring
- 12.2 Methods of wiring (Tee and Loop-in system), Systems of wiring (cleat wiring, wooden casing and capping wiring, PVC sheathed wiring, conduit wiring), choice of wiring system
- 12.3 Types of cable for internal wiring, Types of insulators main switch , Design of main distribution board and sub-distribution board, factors to be considered of installing power circuits.
- 12.4 Determining: number of points, total load, number of sub-circuits, rating of main switch and distribution board, size of conductor, layout of wiring.
- 12.5 Earthing electrode and earthing lead, factors affecting earth resistance, methods of reducing earth resistance, methods of earthing, Design of earthing mat .
- 12.6 Fuse units, MCB and ELCB, Thermal overload relay for motor protection.
13. **केही ऐन नियमहरु**
- (क) ईञ्जिनियरिङ्ग परिषद् ऐन, २०५५ र नियमावली
- (ख) विद्युत ऐन २०४९ एवं नियमावली
- (ग) नेपाल इन्जिनियरिङ्ग परिषद्बाट इन्जिनियरको लागि चाहिने पेशागत कोड अफ कण्डकहरु
- (घ) नेपाल विद्युत प्रसारण तथा वितरण सम्बन्धी नियमहरु (Voltage, frequency, power factor, voltage level for distribution and transmission)
- (ङ) विद्युतीय उपकरण सम्बन्धी सुरक्षाका नियमहरु
- Insulation of Electrical Line
  - Lighting safety,
  - Earthing of equipments
  - Safety of Internal wiring
  - इलेक्ट्रिकल डिभाइसहरु मर्मत सम्भार गर्दा अपनाउनु पर्ने सुरक्षाहरु
14. **Instructional Skills and Classroom Management**
- Learning Domains and learning styles
  - Bloom's Taxonomy
  - Be a professional Technical and Vocational Education and Training (TVET) Instructor
  - Occupational Safety and Health
- Program Evaluation**
- Conduct a CIPP Evaluation
  - Conduct Goal-Free Evaluations
  - Kirkpatrick's Levels of Training Evaluation
  - Tyler's Goal-Based Evaluation Approach

॥ समाप्त ॥



प्राविधिक शिक्षा तथा व्यावसायिक तालीम परिषद्

## पदपूर्ति समिति

सानोठिमी, भक्तपुर ।

प्राविधिक तथा प्रशिक्षण सेवा, इन्जिनियरिङ्ग प्राविधिक प्रशिक्षण समूह,  
इलेक्ट्रिकल उप-समूह अधिकृत स्तर तृतीय श्रेणी **बिद्युत प्रशिक्षक पदको**  
खुला र आन्तरिक प्रतियोगितात्मक परीक्षाको द्वितीय चरणको  
**कम्प्युटर दक्षता परीक्षण प्रयोगात्मक परीक्षाको पाठ्यक्रम**

### पाठ्यक्रमको उद्देश्य :

आजको वैज्ञानिक युगमा दैनिक जीवनमा आइपर्ने व्यावहारिक समस्या समाधानका लागि सूचना र संचार प्रविधिसँग परिचित र न्यूनतम ज्ञान सीप र धारणा भएको व्यक्ति हुन अपरिहार्यता रहेको छ। तसर्थ प्राविधिक शिक्षामा कर्मचारी छनौट गर्दा आधारभूत कम्प्युटर ज्ञान र सीप भएको व्यक्ति छनौट गर्न उपयुक्त हुने हुँदा अधिकृत स्तरका कर्मचारीहरूलाई पनि कम्प्युटर सम्बन्धी गर्नुपर्ने सामान्य समस्याहरू हल गर्ने क्षमता हुन अनिवार्य देखिन्छ। तसर्थ अधिकृतस्तरका पदहरूको खुला र आन्तरिक प्रतियोगितात्मक परीक्षाको द्वितीय चरणमा कम्प्युटर दक्षता परीक्षण प्रयोगात्मक परीक्षा समावेश गरिएको हो।

### प्रयोगात्मक परीक्षा योजना (Practical Examination Scheme)

विषय	पूर्णाङ्क	परीक्षा प्रणाली	विषयवस्तु शीर्षक	अङ्क	समय
कम्प्युटर दक्षता परीक्षण	१०	प्रयोगात्मक (Practical)	Devanagari Typing	२.५	५ मिनेट
			English Typing	२.५	५ मिनेट
			Word processing	२	१० मिनेट
			Electronic Spreadsheet	१	
			Presentation System	१	
			Windows basic, Email & Internet	१	
जम्मा			१०	२० मिनेट	

### द्वितीय चरण

#### विषय : कम्प्युटर दक्षता परीक्षण

#### 1. Windows Basic, Email and Internet

- Introduction to Graphical User Interface
- Use & Update of Antivirus
- Concept of virus, worm, spam etc.
- Starting and shutting down Windows
- Basic Windows elements - Desktop, Taskbar, My Computer, Recycle Bin, etc.
- Concept of file, folder, menu, toolbar
- Searching files and folders
- Internet browsing & searching the content in the web
- Creating Email ID, Using email and mail client tools
- Basic Network troubleshooting (checking network & internet connectivity)

#### 2. Word processing

- Creating, saving and opening documents
- Typing in Devanagari and English
- Copying, Moving, Deleting and Formatting Text
- Paragraph formatting (alignment, indentation, spacing etc.)
- Creating lists with Bullets and Numbering
- Creating and Manipulating Tables
- Borders and Shading

- h. Creating Newspaper Style Documents Using Column
- i. Security Techniques of Document
- j. Inserting header, footer, page number, Graphics, Pictures, Symbols
- k. Page setting, previewing and printing of documents
- l. Mail merge

**3. Presentation System**

- a. Introduction to presentation application
- b. Creating, Opening & Saving Slides
- c. Formatting Slides, Slide design, Inserting header & footer
- d. Slide Show
- e. Animation
- f. Inserting Built-in picture, Picture, Table, Chart, Graphs, and Organization Chart etc.

**4. Electronic Spreadsheet**

- a. Organization of Electronic Spreadsheet applications (Cells, Rows, Columns, Worksheet, Workbook and Workspace)
- b. Creating, Opening and Saving Work Book
- c. Editing, Copying, Moving, Deleting Cell Contents
- d. Formatting Cells (Font, Border, Pattern, Alignment, Number , Protection, Margins and text wrap)
- e. Formatting Rows, Column and Sheets
- f. Using Formula with Relative and Absolute Cell Reference
- g. Using Basic Functions (IF, SUM, MAX, MIN, AVERAGE etc)
- h. Sorting and Filtering Data
- i. Inserting Header and Footer
- j. Page Setting, Previewing and Printing

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॥ समाप्त ॥