नेपाल सरकार
ऊर्जा, जलस्रोत तथा सिंचाइ मन्त्रालय
वैकल्पिक ऊर्जा पर्वद्धन केन्द
प्राविधिक सेवा, सातौ तह, इञ्जिनियर पदको प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

प्रथमपत्रः-इञ्जिनियरिङ्ग सम्बन्धी I
**Section (A) = 26 %Marks**

1. **Work shop technology and Metrology**
   - 1.1 Basic tools and basic hand operations
   - 1.2 Machine tools: Lathe, Shaper, Milling, Grinding, Drilling Machines
   - 1.3 Metal joining: Soldering, Brazing, Gas welding, Arc welding
   - 1.4 Types of fits
   - 1.5 Linear measurement: Block Gages, Length Bars, Comparators
   - 1.6 Errors in measurement
2. **Thermodynamics and heat engines**
   - 2.1 Basic concepts: Thermodynamic System, Thermodynamic Property, Pure Substance, Zeroth Law
   - 2.2 First Law of Thermodynamics: Control mass and Control volume formulation
   - 2.3 Second Law of Thermodynamics: Heat engine, Refrigerator and Heat pump, Kelvin Planck and Clausius Statements, Entropy cooling, humidification and dehumidification process, Air conditioning systems
   - 2.4 Thermodynamic Cycles: Carnot cycle, Otto cycle, Diesel Cycle, Brayton cycle, Rankine cycle
3. **Fluid Mechanics**
   - 3.1 Fluid Properties: Viscosity, Surface tension, Compressibility, Vapor Pressure
   - 3.2 Fluid Statics: Pressure variations in static fluid, Pressure head, Manometer, Force on submerged surfaces
   - 3.3 Equations of Fluid Flow: Types of flow, Continuity equation, Bernoulli's equation, and Momentum equation
   - 3.4 Viscous Effects: Reynolds number, Boundary layer, Frictional resistance to flow in pipes
   - 3.5 Flow measurement: Pitot-static tube, Orifice, Venturimeter, Nozzle, Rotameter
4. **Hydraulic and Electric Machines**
   - 4.1 Water turbines: Pelton, Francis, Kaplan and Cross flow (Working principle and Characteristics)
   - 4.2 Pumps: Centrifugal pump and Reciprocating pump (Working principle and Characteristics), Hydraulic ram
   - 4.3 DC Motors: Shunt field, Series field and Compound field motors, Torque-speed characteristics
   - 4.4 DC Generators: Shunt, Series and Compound field machines, Voltage/speed/load characteristics, Effects of variable load, variable torque
   - 4.5 Synchronous and Induction Machines: Basic structure of synchronous machines, Generator on isolated load, Generator on large system, Synchronous motor
5. **Construction Materials and Concrete Technology**
   - 5.1 Properties of building materials: physical, chemical, constituents, thermal etc
   - 5.2 Stones-characteristics and requirements of stones as a building materials
   - 5.3 Ceramic materials: ceramic tiles, Mosaic Tile, brick types and testing.
   - 5.4 Cementing materials: types and properties of lime and cement,cement mortar tests
   - 5.5 Metals: Steel; types and properties; Alloys
   - 5.6 Timber and wood: timber trees in Nepal, types and properties of wood
   - 5.7 Miscellaneous materials: Asphaltic materials (Asphalt, Bitumen and Tar); paints and varnishes; polymers
   - 5.8 Constituents and properties of concrete (physical and chemical)

5.9 Water cement ratio
5.10 Grade and strength of concrete, concrete mix design, testing of concrete
5.11 Mixing, transportation pouring and curing of concrete
5.12 Admixtures, High strength concrete
5.13 Pre-stressed concrete technology

**Section (B) = 24%Marks**

**6. Basic Electrical and Electronics Engineering**

6.1 Electrical Engineering Materials: Conducting, insulating & semiconductor materials
6.2 Circuit Parameters: resistance, inductance, capacitance and temperature effect of resistance
6.3 Circuit Fundamentals: Series & parallel circuits, circuit elements, independent & dependent sources, Ohm's law, Kirchhoff's Voltage & current laws
6.4 Network Theorems: Mesh's and Nodal's analysis of electrical circuits, Thevenin's, Norton's, maximum power & reciprocity theorems
6.5 AC circuits: Concept of complex impedance, phaser diagram, Active, Reactive & Apparent power, Power factor, resonance in AC circuit
6.6 Bi-polar junction transistor: construction, operating characteristics, use as amplifier and switch.
6.7 Logic circuit: Decimal, Binary and Hexadecimal system, logic gates, adder, Endoder, Decoder, Multiplexer, Demultiplexer.
6.8 Semi-conductor devices: Diodes, Transistors, BJT, MOSFET, thyristors
6.9 Rectifier : Rectifier using diodes - half wave, full wave, single phase, three phase, capacitor and inductor filters, Controlled rectifier using thyristors - half wave, full wave, single phase, three phase.

**7. Instrumentation**

7.1 Transducers: Measurement of electrical, mechanical, thermal and hydraulic variables
7.2 Accuracy and Precision: Parallax, Absolute and Relative Errors
7.3 Oscilloscope: Operating principles, Analog and Digital Oscilloscope
7.4 Digital instrumentation: Fundamental principles, interfacing to the computers, Microprocessor based instrumentation
7.5 Instrument Transformers: Construction and Operating Principles of Measuring and Protection type CTs, Potential transformers

**8. Professional Practices**

8.1 Ethics, integrity and professionalism: code of conduct and guidelines for professional engineering practices
8.2 Relation with clients, contractor and fellow professionals
8.3 Building Bylaws

**Section (C) = 40 %Marks**

**9. Estimating, Costing, Specification and Valuation**

9.1 Types of estimates and their specific uses
9.2 Methods of calculating quantities
9.3 Key components of estimating norms and rate analysis
9.4 Preparation of bill of quantities
9.5 Purpose, types and importance of specification
9.6 Purpose, principles and methods of valuation

**10. Engineering Drawing**

10.1 Drawing sheet composition and its essential components
10.2 Suitable scales, site plans, preliminary drawings, working drawings
10.3 Theory of projection drawing: perspective, orthographic and axonometric projection, first and third angle projection
10.4 Drafting tools and equipments
10.5 Drafting conventions and symbols
10.6 Topographic, electrical, plumbing and structural drawings
10.7 Techniques of free hand drawing
10.8 Community buildings: School and hospital buildings and their design considerations

**11. Engineering Economics**

11.1 Benefit cost analysis, cost classification, sensitivity analysis, internal rate of return, time value of money; economic equilibrium, demand, supply and production, net present value, financial and economic evaluation

**12. Environmental engineering**

12.1 Environmental Pollution- units of measurements, material balance and energy fundamentals, classification of pollution
12.2 Air Pollution: Causes and effects
12.3 Water Pollution: Causes and effects, Waste water treatment
12.4 Industrial Waste: Collection and disposal
12.5 Global warming and climate change
12.6 Environment assessment: IEE and EIA
12.7 Environmental hazards; tools and techniques of hazard assessment

**13. Energy Resources**

13.1 Energy consumption scenario of Nepal, commercial and non-commercial energy resources
13.2 Hydroelectricity, national potentials, achievements and utilization
13.3 Solar energy and its applications: Solar thermal, solar photovoltaic
13.4 Biomass energy, wind energy, Methods of enhancing energy efficiency & energy conservation , energy audit, energy banking, energy crisis and management.
13.5 Concept of Quality Control and Quality Assurance

**Section (D) = 10 %Marks**

**14. कानून, ऐन, नियम तथा नीतिहरु**

14.1 नेपालको वर्तमान संविधानको सामान्य जानकारी
14.2 चालु आवधिक योजनामाउर्जा नीति सम्बन्धी जानकारी
14.3 नवीकरणीय ऊर्जा अनुदान नीति, २०७३ तथा अनुदान परिचालन कार्यविधि, २०७३
14.4 जैविक ऊर्जा रणनीति, २०७३
14.5 वैकल्पिक ऊर्जा विकास समिति कर्मचारी सेवाशर्त नियमावली, २०६६
14.6 वैकल्पिक ऊर्जा पर्वद्धन केन्द आर्थिक अनुशासन तथा सुशासन नियमावली, २०७५
14.7 वैकल्पिक ऊर्जा विकास समिति (गठन), आदेश २०५३
14.8 सार्वजनिक खरिद ऐन, २०६३ तथा सार्वजनिक खरिद नियमावली, २०६४
14.9 भ्रष्टाचार निवारण ऐन, २०५९

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प्राविधिक सेवा, सातौ तह, इञ्जिनियर पदको प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

द्वितीयपत्रः-इञ्जिनियरिङ्ग सक्बन्धीII

**Section (A) = 20 Marks(10 Marks × 2 Questions)**

1. **Work shop technology and Metrology**
   - 1.1 Basic tools and basic hand operations
   - 1.2 Machine tools: Lathe, Shaper, Milling, Grinding, Drilling Machines
   - 1.3 Metal joining: Soldering, Brazing, Gas welding, Arc welding
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   - 1.6 Errors in measurement
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   - 2.1 Properties of building materials: physical, chemical, constituents, thermal etc
   - 2.2 Stones-characteristics and requirements of stones as a building materials
   - 2.3 Ceramic materials: ceramic tiles, Mosaic Tile, brick types and testing.
   - 2.4 Cementing materials: types and properties of lime and cement,cement mortar tests
   - 2.5 Metals: Steel; types and properties; Alloys
   - 2.6 Timber and wood: timber trees in Nepal, types and properties of wood
   - 2.7 Miscellaneous materials: Asphaltic materials (Asphalt, Bitumen and Tar); paints and varnishes; polymers
   - 2.8 Constituents and properties of concrete (physical and chemical)
   - 2.9 Water cement ratio
   - 2.10 Grade and strength of concrete, concrete mix design, testing of concrete
   - 2.11 Mixing, transportation pouring and curing of concrete
   - 2.12 Admixtures, High strength concrete
   - 2.13 Pre-stressed concrete technology
3. **Engineering Design and Drawing**
   - 3.1 Types of Projection
   - 3.2 Production Drawings
   - 3.3 Loading: Tensile, Compressive, Shearing, Bending, Bearing and Torsion
   - 3.4 Common Types of Failure: Theories of failure, Stress concentration effects, Ductile and brittle materials, Factor of safety

**Section (B) = 20 Marks (10 Marks × 2 Questions)**

4. **Thermodynamics and heat engines**
   - 4.1 Basic Concepts: Thermodynamic System, Thermodynamic Property, Pure Substance, Zeroth Law
   - 4.2 First Law of Thermodynamics: Control mass and Control volume formulation
   - 4.3 Second Law of Thermodynamics: Heat engine, Refrigerator and Heat pump, Kelvin Planck and Clausius Statements, Entropy
   - 4.4 Thermodynamic Cycles: Carnot cycle, Otto cycle, Diesel Cycle, Brayton cycle, Rankine cycle
5. **Hydraulic and Electric Machines**
   - 5.1 Water turbines: Pelton, Francis, Kaplan and Cross flow (Working principle and Characteristics)
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5.5 Synchronous and Induction Machines: Basic structure of synchronous machines, Generator on isolated load, Generator on large system, Synchronous motor

**6. Professional Practice**

6.1 Ethics and Professionalism: Perspective on morals, Codes of ethics and guidelines of professional engineering practice
6.2 Legal aspects of Professional Engineering in Nepal: Engineering Council act, Provision for private practice and employee engineers
6.3 Contract
6.4 Tendering and contract documents

**Section (C) = 40 Marks(10 Marks × 4 Questions)**

**7. Engineering Management**

7.1 Role of production/Operation Management and System Concepts
7.2 Plant Location and Plant Layout Design
7.3 Production Planning and Control: Selection of materials, methods, machines and manpower
7.4 Project management –Objectives, goals, project cycle, Project information system, social and financial analysis of the project, decision making and contract negotiation, use of result framework
7.5 Network methods: PERT, CPM
7.6 Inventory Control: Inventory costs and Inventory models
7.7 Quality Management: Importance of quality, Statistical process control
7.8 Statistical Analysis: Measurement of central tendency, Deviation, Distribution
7.9 Procurement Procedure

**8. Estimating, Costing, Specification and Valuation**

8.1 Types of estimates and their specific uses
8.2 Methods of calculating quantities
8.3 Key components of estimating norms and rate analysis
8.4 Preparation of bill of quantities
8.5 Purpose, types and importance of specification
8.6 Purpose, principles and methods of valuation

**9. Engineering Economics**

9.1 Types of engineering economics decisions
9.2 Time Value of Money: Simple interest, Compound interest, Continuous compound interest
9.3 Project Evaluation Techniques: Payback period method, NPV method, Future value analysis, IRR method
9.4 Benefit and Cost Analysis: Cost benefit ratio, breakeven analysis
9.5 Corporate tax system in Nepal
9.6 Depreciation and its type

**10. Environmental engineering**

10.1 Air Pollution : Causes and effects
10.2 Water Pollution : Causes and effects, Waste water treatment

10.3 Industrial Waste : Collection and disposal
10.4 Indoor Air Quality : Indoor pollutants, Effects of indoor pollutants and Control of indoor pollutants
10.5 Global impacts : Green house effects, Acid rain, Montreal Protocal

**Section (D) = 20 Marks(10 Marks × 2 Questions)**

**11. Basic Electrical and Electronics Engineering**

11.1 Electrical Engineering Materials: Conducting, insulating & semiconductor materials
11.2 Circuit Parameters: resistance, inductance, capacitance and temperature effect of resistance
11.3 Circuit Fundamentals: Series & parallel circuits, circuit elements, independent & dependent sources, Ohm's law, Kirchhoff's Voltage & current laws
11.4 Network Theorems: Mesh's and Nodal's analysis of electrical circuits, Thevenin's, Norton's, maximum power & reciprocity theorems
11.5 AC circuits: Concept of complex impedance, phaser diagram, Active, Reactive & Apparent power, Power factor, resonance in AC circuit
11.6 Bi-polar junction transistor: construction, operating characteristics, use as amplifier and switch.
11.7 Logic circuit: Decimal, Binary and Hexadecimal system, logic gates, adder, Encoder, Decoder, Multiplexer, Demultiplexer.
11.8 Semi-conductor devices: Diodes, Transistors, BJT, MOSFET, thyristors
11.9 Rectifier : Rectifier using diodes - half wave, full wave, single phase, three phase, capacitor and inductor filters, Controlled rectifier using thyristors - half wave, full wave, single phase, three phase.

**12. Instrumentation**

12.1 Transducers: Measurement of electrical, mechanical, thermal and hydraulic variables
12.2 Accuracy and Precision: Parallax, Absolute and Relative Errors
12.3 Oscilloscope: Operating principles, Analog and Digital Oscilloscope
12.4 Digital instrumentation: Fundamental principles, interfacing to the computers, Microprocessor based instrumentation
12.5 Instrument Transformers: Construction and Operating Principles of Measuring and Protection type CTs, Potential transformers

**13. Energy Resources**

13.1 Energy consumption scenario of Nepal
13.2 Solar energy and its applications: Solar thermal, solar photovoltaic
13.3 Biomass energy
13.4 Hydroelectricity

**वैकल्पिक उर्जा पर्वद्धन केन्द्र**

प्र ाविधक से वा, पाँ चौ तह, सब-इन्जिनियर पदको प्र तियो गितात्मक परीक्षाको पाठ् यक्रम

## प्रथम र द्वितीय पत्र :– सेवा सम्बन्धी र सामान्य ज्ञान

## भाग (अ)– सेवा सम्वन्धी (८०%अङ्क)

### खण्ड (क) - ४०%

1. **Energy Resources**
   - 1.1 Perpetual, renewable and non-renewable energy resources
   - 1.2 Conventional and non-conventional; traditional and commercial
   - 1.3 Energy reserves and resources in Nepal
   - 1.4 Current status and importance of renewable energy resources in Nepal

2. **Construction Engineering and Construction Technology**
   - 2.1 Properties of building materials: physical, chemical, constituents, thermal
   - 2.2 Construction materials found in Nepal; suitability of different building materials for differentzones, strength and quality production
   - 2.3 Rocks/stone: types of rocks, their characteristics and properties of good stone
   - 2.4 Metal and alloys: Ferrous metals and non-ferrous, steel (composition and properties); alloys(properties and uses); corrosion and its prevention
   - 2.5 Brick: types of bricks and sizes of bricks available in Nepal
   - 2.6 Lime and Surkhi: types, properties and its uses
   - 2.7 Timber and wood products: Structural classification -Soft wood and hard wood-defects intimber-seasoning of timber -preservation of timber, timber trees in Nepal, types and properties of wood
   - 2.8 Masonry: Classification-Stone masonry-Brick masonry -Laterite masonry composite masonry. Different types of stone masonry-General principles and specifications for stone masonry asper relevant codes
   - 2.9 Brick work: Brickwork preparation of trench plan methods of trench layout, different types of walls and their function, mortars for stone and brickwork, causes of dampness in building and remedies, terms used in brickwork (queen closer, king closer, meander, stretcher etc) different types of board, tools for laying bricks
   - 2.10 Cements: Composition, Compounds present, manufacturing methods-characteristics of cement, Types of cement-Properties of each-characteristics of cement-Tests on cement-Consistency test, fineness test. Sp. gravity test, setting time test, Soundness test. Puzzolona-definition-Common puzzolonas used as admixtures in cement
   - 2.11 Aggregates: Sand: Sources of sand-River sand, Sea sand and pit sand-Limitations of mining of sand from rivers and sea shore-M-sand, alternatives of sand
   - 2.12 Reinforced cement concrete-Qualities of materials-Types of reinforcement used characteristics of reinforcing material-waterproofing compounds
   - 2.13 Concrete and reinforced concrete works: Constituents and properties of concrete, Watercement ratio, Grade and strength of concrete, concrete mix design, testing of concrete, preparation of mixing, placing compacting, curing and frameworks
   - 2.14 Mortar: Preparation of lime and cement mortar-Proportions of mortar for various items ofwork-tests on cement mortar
   - 2.15 Ornamental materials for finishing: Paints and Varnishes: Types – Constituents Preparation characteristics and application
   - 2.16 Plastering work: function, preparation of mix, surface preparation, paints and white washes in walls and ceiling, stuff works.
   - 2.17 Flooring: introduction, types of flooring (mud, brick, cement, flagstone, mosaic, floor-boards)

3. **Roads and Bridges**
   - 3.1 Definition of road, Historical background, Classification of roads, Development of road network in Nepal, Road planning concept in Nepal, construction of small trails and used in rural areas, general design and layout construction of motorable road, types, construction and function of retaining wall, construction and function of drainage works use of bituminous materials in road
   - 3.2 General idea of construction equipment's and plants, Causes of damage to roads, road signs and signals
   - 3.3 General idea of suspension bridge-layout, foundation etc. river training works and shoring in bridges

4. **Surveying**
   - 4.1 Concept and purpose of surveying, principal of surveying, scale conventional signs in mapprinciple of surveying classification of surveying, linear and angular measurement instruments, horizontal distance measurement.
   - 4.2 Ranging out lines uses of water level, rubber tube level and builders level and field book. Different leveling instrument temporary adjustment, leveling procedure, types of leveling compass, its types, booking method, local attraction, methods of plane table, setting out instrument plane table introduction of theodolite and its uses
   - 4.3 Different types of surveys used in road and irrigation work

5. **Estimation and Costing**
   - 5.1 Purpose, Types and Methods of estimates
   - 5.2 Units of measurements and modes of payment of various items of work and materials
   - 5.3 Standard estimate formats of government of Nepal
   - 5.4 Rate analysis and Norms (rate analysis norms prepared by Ministry of Work sand Transport and the district rates prescribed by district development committee)
   - 5.5 Standard Rate analysis and Norms, preparing bill of quantities, muster roll, contract system, safety of construction site, storing of materials, purchase and receive materials
   - 5.6 Specifications (understanding, purpose, types and necessity)
   - 5.7 Valuation (concept, purpose and methods)

6 **Drawing**
   - 6.1 Concept, aims, used and importance of drawing
   - 6.2 Drawing tools and instruments andtheir uses
   - 6.3 Drafting techniques and methods in common practice
   - 6.4 Introduction to Computer AidedDrafting (CAD) Software

## खण्ड (ख) - ४० %

**7 Basic Electrical and Electronics**
   - 7.1 Current, voltage and resistance, types of electrical measuring equipments, electric field, capacitors, electromagnetic inductance and application, electric circuit (series, parallel and mixed circuits), applications of Ohm's law and Kirch off's law, A.C. circuits –alternating current generation, ohmic resistance, inductive reactance, capacitance and impedance, electrical machines (transformer, A.C/D.C. motors, generators) -working principle, construction and types

7.2 Introduction to electronics and applications in different fields, active and passive components, voltage and current sources, semiconductor physics, behaviour functioning of P.N. junction,Diodes and applications, bipolar transistors and switching characteristics, injunction transistor,MOS transistors and switching characteristics, TTL logic circuits, NMOS/CMOS logiccircuits, memory (RAM, DRAM, PROM, EPROM), operational amplifiers, filters, A/Dconverters, adders, oscillators, seven segment display, amplifier, heat sinks and relays

**8 Electronic Devices and Circuits**

8.1 Classification of materials (conductor, semiconductor and insulator), electrical properties andmagnetic materials, rectifier, filter circuits, brief idea and typical applications of powerdiode, Zener diodes, Varactor diode, tunnel diode and point contact diode, transistor biasingand stablisation of operating point, switches and connectors, conventional representation ofelectric and electronic circuit elements

8.2 Electronic circuit design (single stage and multiple stage amplifier, voltage amplifier,feedback amplifier and power amplifier, differential and operational amplifiers), oscillators(negative and positive feedback), speed control of DC and AC motor by using thyristor, frequency response

**9 Instrumentation and Control System**

9.1 Multimeter, oscilloscopes, signal generator, impedance bridges, transducers (strain guages,thermistor, piezoelectric tachometer, thermocoupler), open loop and closed loop controlsystem, frequency response

9.2 Measuring instruments, moving coil meter, moving iron meter, frequency meter, energymeter, multimeter, clamp-on tester, megger

**10 Power supplies**

10.1 Single phase and three phase AC power supply systems, star/delta connection, rectifiersand filters, regulated power supply system, uninterruptible power supply systems

10.2 Basic knowledge of diesel/petrol/gas/thermal generators, solar power system, storagebatteries, electric motors, DC supply, voltage and current regulators, inverters, isolationand power transformers, surge protectors, earthing system, lightning protection

**11 Computer and Digital Techniques**

11.1 Basic knowledge of computer hardware and software, networking internet, intranet,modems, computer protocols and basic computer architecture, applications and advantagesof digital systems, number systems and conversion methods

11.2 Digital fundamentals -logic gates, flip-flop, codes and parity, arithmetic circuits, decoders,display devices and associated circuits, design system building blocks – half adder, fulladder, encoder, decoder, multiplexer, de-multiplexer, memories, counters, shift registers,latches, clock, triggering, A/C and D/C converters, Boolean algebra

**वैकल्पिक उर्जा पर्वद्धन केन्द्र**

प्र ाविधक से वा, पाँ चौ तह, सब-इन्जिनियर पदको प्र तियो गितात्मक परीक्षाको पाठ् यक्रम

## भाग (आ)– सेवा सम्वन्धी (२०%अङ्क)

### खण्ड (ग) – (२०%अङ्क)

**12 कानून, ऐन, नियम र नीतिहरु**

12.1 नेपालको वर्तमान संविधान (भाग १, २, ३, ४, ५, २० र अनुसूची १ देखि ९ सम्म मात्र)

12.2 भ्रष्टाचार निवारण ऐन, २०५९ (परिच्छेद २)

12.3 सार्वजनिकखरिद ऐन, २०६३ को (परिच्छेद १ र २)

12.4 मुलुकी देवानी संहिता २०७४, भाग ५ को परिच्छेद ६ र १८

12.5 नवीकरणीय ऊर्जा अनुदान नीति, २०७३ तथा नवीकरणीय ऊर्जा परिचालन कार्यविधि, २०७३

12.6 वैकल्पिक ऊर्जा पर्वद्धन केन्द्र कर्मचारी सेवाशर्त नियमावली, २०६६

12.7 दिगो विकास, वातावरण, प्रदुषण, जनसंख्या, शहरीकरण, बँसाईसराई, जलवायु परिवर्तन, जैविक विविधता, ऊर्जा संकट तथा ऊर्जा संरक्षण

12.8 ऊर्जाकाकिसिम, स्रोत र उपयोगिताएवं नेपालमानवीकरणीयउर्जा प्रविधिको विकासक्रमतथा वैकल्पिकउर्जा पर्वद्धन केन्दको काम र कर्तव्य

प्रथमपत्रको लागि यथासम्भव निम्नानुसार प्रश्नहरु सोधिने छ ।

| प्रथमपत्र (वस्तुगत) | | | | | |
|---|---|---|---|---|---|
| **भाग** | **विषय** | **खण्ड** | **परीक्षाप्रणाली** | **अङ्कभार** | **प्रश्न संख्या** |
| (अ) | सेवा सम्वन्धी | खण्ड (क) | वस्तुगत बहुवैकल्पिक प्रश्न (MCQs) | ४० | २० प्रश्नX २ अङ्क= ४० |
| | | खण्ड (ख) | | ४० | २० प्रश्नX २ अङ्क= ४० |
| (आ) | सामान्यज्ञान | खण्ड (ग) | | ३० | १५ प्रश्नX २ अङ्क= ३० |

द्वितीय पत्रको लागि यथासम्भव निम्नानुसार प्रश्नहरु सोधिनेछ ।

| द्वितीयपत्र (विषयगत) | | | | | |
|---|---|---|---|---|---|
| **भाग** | **विषय** | **खण्ड** | **अङ्कभार** | **छोटो उत्तर** | **लामो उत्तर** |
| **(अ)** | सेवा सम्वन्धी | **(क)** | ४० | ४ प्रश्नX ५ अङ्क= २० | २ प्रश्नX १० अङ्क=२० |
| | | **(ख)** | ४० | ४ प्रश्नX ५ अङ्क= २० | २ प्रश्नX १० अङ्क=२० |
| **(आ)** | सामान्यज्ञान | **(ग)** | २० | ४ प्रश्नX ५ अङ्क= २० | – |
| **जम्मा** | | | **१००** | १२ प्रश्नX ५ अङ्क= ६० | ४ प्रश्नX १०अङ्क= ४० |