

नेपाल नागरिक उड्डयन प्राधिकरण
प्राबिधिक सेवा, इलेक्ट्रिकल ईन्जिनियरिङ्ग समूह,
बरिष्ठ सहायक (इलेक्ट्रिकल), पाँचौ तहको खुला तथा आन्तरिक
प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

लिखित परीक्षा

परीक्षाको विषय	परीक्षा प्रणाली	प्रश्न संख्या	अंक भार	समय
प्रशासन तथा व्यवस्थापन र सेवा सम्बन्धी	वस्तुगत बहुउत्तर	२५ X २	५०	३० मिनेट
	छोटो छोटो उत्तर	८ X ५	४०	१ घण्टा
	लामो उत्तर	१ X १०	१०	

अन्तर्वार्ता

- क) अन्तर्वार्ताको अंक भार - २०
 ख) शैक्षिक योग्यताको अंकभार - ३

शैक्षिक योग्यता वापतको अंक : न्यूनतम शैक्षिक योग्यता वापत प्रथम श्रेणीलाई ३, द्वितीय श्रेणीलाई २ र तृतीय श्रेणीलाई १ अंक प्रदान गरिनेछ । तर आन्तरिक प्रतियोगितात्मक परीक्षामा शैक्षिक योग्यताको अंक गणना गरिने छैन ।

क) प्रशासन तथा व्यवस्थापन

१. नेपालको आर्थिक, भौगोलिक, ऐतिहासिक, सामाजिक, सांस्कृतिक, राजनैतिक अवस्था वारे जानकारी
२. नेपालको अन्तरिम संविधान, २०६३ सम्बन्धी सामान्य जानकारी
३. सार्वजनिक प्रशासनको परिचय
४. कार्यालय कार्य विधि, दर्ता चलानी, पत्र व्यवहार, टिप्पणी र जनसम्पर्क
५. कर्मचारी प्रशासनमा मनोबल, संगठनात्मक व्यवहार र जनशक्ति योजना
६. प्रशासनमा संचारको महत्व, जनसम्पर्क र समन्वय सम्बन्धी सामान्य जानकारी ।
७. नेपाल नागरिक उड्डयन प्राधिकरण ऐन, २०५३
८. नेपाल नागरिक उड्डयन प्राधिकरण कर्मचारीहरूको सेवाका शर्त र सुविधा सम्बन्धी नियमावली, २०५६
९. नेपाल नागरिक उड्डयन प्राधिकरण आर्थिक प्रशासन सम्बन्धी नियमावली, २०५७
१०. भ्रष्टाचार निवारण ऐन, २०५९
११. नेपाल सरकारको राष्ट्रिय हवाई नीति
१२. नेपाल नागरिक उड्डयन प्राधिकरण सम्बन्धी जानकारी

ख) सेवा सम्बन्धी

1. Fundamental concept of Electrical Engineering

Kirchhoffs laws, Electric Circuit and Network Theorems, Alternating Current fundamentals, Frequency, Sine waves, series-parallel computation of reactance, capacitance and resistance, active, reactive and apparent power, Wheatstone bridges, fundamental principles of star and delta connection of three phase windings, effect of unbalanced load in three phase system, voltage drop, heating effect of electric current, Electric Power, Electrical Energy, Mechanical units of works. A.C circuit with RLC, use of j operator in circuit analysis, Measuring Instruments- Ammeter, Voltmeter, Potentiometer, Megger.

2. Power Generation

Types of Generating plants,-Hydro, Diesel Generator and Solar (Working principles, equipment, bus bar, AVR and Reactors. Auto Power Transfer switch, Details of Batteries, Stand by Generation, UPS- Importance and application in power generation.

3. Electric Machine

AC / DC Generator parts and windings, AC / DC motors and its parts, synchronous generators, their components, principle and operating characteristics, different excitation systems, loading and parallel operation; Transformer - Different components, method of cooling, parallel operation, losses, transformer oil and its role, maintenance of transformers, Buchholz protection; CT and PT for measuring and protection purposes- operating principle and characteristics.

4. Power Distribution and Consumer Services

Overhead line parameters, resistance, inductance, capacitance, sag and clearances; types of underground cable, Cable resistances and capacitances. General concepts about Cables used for runway power distribution, selection of cable and selection Criteria. Handling of cable and protection, Cable joints, Insulation resistance; lightning phenomenon, lightning arrestors types and function, overhead earth wire; voltage drops voltage rise, earthing of electrical system and electrical equipments its importance and methods of earthing, Measurement of Earth resistance; Energy Tariffs Structure; House wiring- Commercial Building wiring, principles of cost estimation for distribution system for domestic and commercial building.

5. Power System Operation and Maintenance

Different types of Fuses, MCB, MCCB and Contactors; Principle of operation of different types of switchgears like Bulk oil, vacuum, minimum oil, gas filled principles of over-current earth fault and under voltage protector, different types of relays- selection, characteristics and operating principles; power line carrier communication.

6. Economics of Power Utilization

Basic concept about Energy Audit: Load management, TOD meter, Demand side management; Power Factor Improvement: Causes and effects of low power factor, advantages and methods of power factor improvement.

7. Illumination

Law of illumination, radiant efficiency, CFL lamps, design of lighting schemes.

8. Electrical Safety

Safety rules and regulation, storage and handling of explosives and compressed gases and flammables substances, explosion of electrical equipment in premises and precaution to be taken, Concept of touch voltage and step potential, effects of non ionizing electromagnetic fields on human, earthing and shielding techniques for electrical equipment, First aid requirements for after the event treatment.

9. Basic Electronics

Characteristics of diode, transistor and thyristor, rectifier and filter, inverter, speed control of DC and AC motor by using thyristor.

10. Basic Information about Lighting System at Airport

a) Runway lights

- a. Edge light.
- b. Threshold and wing bar lights.
- c. End lights.
- d. Center line lights.
- e. Touch zone lights.
- f. Guard lights.

b. Stopway Lights

c. Taxiway lights

- a. Centre line lights.
- b. Edge lights.
- c. Stop bar.
- d. Intersection light.

Model Questions

A) Objective Question

1. The output voltage a power transformer is
- a) 90° out of phase from the input
 - b) 180° out of phase from the input
 - c) 45° out of phase from the input
 - d) 90° out of phase from the input

B) Short Answer Question

1. With the help of neat sketch, explain the plate earthing for equipment earthing.

C) Long Answer question

1. It is desired to flood-light the front of a building 42 meters wide and 16 meters high. Projectors of 30° beam spread and 1000 Watt lamps giving 20 lumen/Watt are available. If the desired level of illumination is 75 lumen/m² and if the projectors are to be located at ground level 17 meters away, design and show a suitable scheme. Assume the coefficient of utilization, depreciation factor and waste light factor are 0.4, 13, and 1.2 respectively.

द्रस्टव्य

- १) प्रश्न निर्माण गर्दा सामान्यतया वस्तुगत बहुउत्तर तर्फ अधिकांश प्रश्नहरू सेवा सम्बन्धी खण्डबाट र केही प्रश्नहरू प्रशासन तथा व्यवस्थापन खण्डबाट सोध्न सकिनेछ ।
- २) छोटो छोटो उत्तर तर्फ दुवै खण्डबाट चार चार वटा प्रश्नहरू सोधिने छ ।
- ३) लामो उत्तर दिने प्रश्न तर्फ सेवा सम्बन्धी खण्डबाट मात्र प्रश्न सोधिनेछ ।
- ४) परीक्षा एकै दिन दुई सिटिंग गरी संचालन गरिनेछ । पहिलो सिटिंगमा वस्तुगत बहुउत्तर र दोस्रो सिटिंगमा छोटो छोटो उत्तर तथा लामो उत्तरको परीक्षा संचालन गरिनेछ ।
- ५) दुवै सिटिंगको परीक्षाको कूल अंक (१०० अंक) को न्यूनतम ४० (चालीस) प्रतिशत अंक (४० अंक) लाई उत्तिर्णाङ्क मानिनेछ । उत्तिर्णाङ्क प्राप्त नगर्ने उम्मेदवारलाई अन्तर्वार्तामा सम्मिलित गरिने छैन ।