

नेपाल नागरिक उड्डयन प्राधिकरण
प्राविधिक सेवा, इलेक्ट्रिकल इन्जिनियरिङ्ग समूह, छैठौं तह, अधिकृत पदको खुला/आन्तरिक प्रतियोगितात्मक
परीक्षाको पाठ्यक्रम

द्वितीय पत्र: सेवा सम्बन्धी
खण्ड (क) - ५० अङ्क

1. **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 proposes
2. **Power Distribution and Consumer Services**
Lightening phenomenon- Lightening Arrestors types and function, overhead earth wire; Methods of Earthing- Measurement of Earth resistance; Energy Tariffs Structure; Domestic House Wiring- Commercial Building Wiring, principles of cost estimation for distribution system for domestic and commercial building
3. **Protection and Switch Gear Principles**
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
4. **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
5. **Electrical Safety**
General Safety Precaution in Electrical Maintenance; High-Voltage Precaution; Work on Energized Circuits; Grounding of Electrical Equipment; Battery Safety Precaution; Precaution with Chemical; Safety from Fire; First Aid requirements

खण्ड (ख) - ५० अङ्क

6. **Location, Application and characteristics of Aeronautical Ground Lighting System**
 - Approach Lighting System
Simple Approach Light, Precision Approach Light CAT I, CAT II and CAT III
 - Visual Approach Slope Indicator System
PAPI and APAPI
 - Runway lights
Edge light, Threshold and wing bar lights, Runway Threshold Identification Lights, End lights, Center line lights, Touch down zone lights, Guard lights, Stop way Lights
 - Taxiway lights
Centre line lights, Edge lights, Stop bar lights
 - Apron floodlighting
 - Road holding position light
 - Aircraft stand maneuvering lights

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- Wind Direction Indicator, Aerodrome beacon light
- Runway sign: Mandatory instruction sign, Information sign, Location sign

7. Maintenance

Maintenance schedules - Periodic, Preventive and emergency maintenance, Fault reporting and fault finding: fault reporting procedures, fault category and action plan, maintaining log, fault clearing and logging and Fault Recording System, Check list of Equipment- Daily, Weekly, Monthly and Yearly, Duty and Responsibilities of Shift - In-charge, Roster Duty, Manpower Management and Leadership

8. Types of electrical circuits

Electrical characteristics, Series circuits Parallel (multiple) circuits, Comparison of series and parallel lighting circuits, Series circuitry for aerodrome lighting, Grounding, Step-down transformers, Series cut-out

9. Aerodrome Lighting Circuit

Interleaving of aerodrome lighting circuits, Arrangement in the electrical vault, Provision of interleaving, Possible provision of interleaving Selective switching of taxiway circuits

10. Constant current regulators

Types of constant current regulators, Operating characteristics of constant current regulators, Rating characteristics of constant current regulators, Open circuit and over-current protection, Load calculations/regulator sizing, Types of loading, Calculation of lighting facility load

11. Aerodrome ground lighting series transformers

Functions, Transformer design, Enclosure, Transformer ratings, Several lamps from a single transformer, Effects of open circuited secondary of transformer, Lamp by-pass devices, Transformer stand

12. Control and monitoring of aerodrome lighting systems

Apron control panel, Control circuitry, Types of remote control systems, Transfer relay panel, Use of relays, Interconnection of controls, Automatic controls, Monitoring of aerodrome lighting circuits, Classes of monitors

द्वितीय पत्रबाट निम्नानुसार प्रश्न सोधिनेछ :

| द्वितीय पत्र (विषयगत) | | | | |
|-----------------------|------|---------|------------------------|-------------------------|
| विषय | खण्ड | अङ्कभार | छोटो उत्तर | लामो उत्तर |
| सेवा सम्बन्धी | (क) | ५० | २ प्रश्न X ५ अङ्क = १० | ४ प्रश्न X १० अङ्क = ४० |
| | (ख) | ५० | २ प्रश्न X ५ अङ्क = १० | ४ प्रश्न X १० अङ्क = ४० |
| जम्मा | | १०० | ४ प्रश्न X ५ अङ्क = २० | ८ प्रश्न X १० अङ्क = ८० |