

लोक सेवा आयोग
नेपाल इञ्जिनियरिङ्ग सेवा, इलेक्ट्रिकल समूह, जनरल इलेक्ट्रिकल उपसमूह, राजपत्रांकित प्रथम श्रेणीको
(खुला प्रतियोगिता र आन्तरिक प्रतियोगिता) लिखित परीक्षाको पाठ्यक्रम

द्वितीय पत्र: प्राविधिक विषय

1. Electrical Machine.

- 1.1 Transformers
- 1.2 Synchronous Generators and Motors.
- 1.3 Induction Generator/Motors.

2. Power System Analysis.

- 2.1 High voltage Transmission System
- 2.2 Load flow study.
- 2.3 Power system stability.
- 2.4 Steady-state stability implications, series and shunt compensation.
- 2.5 Performance of transmission lines- short, medium and long lines.
- 2.6 Surge impedance and surge impedance loading of transmission lines.
- 2.7 Skin effect, corona.
- 2.8 Load dispatching.
- 2.9 Demand Side Management.
- 2.10 Single-phase and three-phase distribution system.
- 2.11 Rural distribution system.
- 2.12 Protection coordination in distribution system.
- 2.13 Quality of electricity.

3. Control and Protection.

- 3.1 Types of fault in power system
- 3.2 Fault calculation
- 3.3 Principles of power system protection.
- 3.4 Isolators and contractors
- 3.5 Circuit breakers: Vacuum, air, oil and SF₆
- 3.6 Types of relays.
- 3.7 Protection of generators, transformers and transmission/distribution lines.
- 3.8 Earthing and shielding technique.
- 3.9 Lighting protection.

4. Rural Electrification

- 4.1 Electricity and rural development
- 4.2 Technology and approaches for rural electrification.
- 4.3 Role of micro and mini hydropower, solar power.

5. Power Plants.

- 5.1 Hydropower potential
- 5.2 Hydropower plant.
- 5.3 Substation layout.
- 5.4 Turbine types and application.
- 5.5 Pumped storage plant.
- 5.6 Environmental impacts of steam, gas, nuclear, wind and solar power plants.

6. Safety Engineering.

- 6.1 Effects of non-ionizing magnetic fields on human body.
- 6.2 Physical effect of electric shock.
- 6.3 Safety rules and regulations.
- 6.4 Safety tools and devices.
- 6.5 Earthing and shielding technique.
- 6.6 Fire hazards.
- 6.7 Fire fighting techniques and equipment.
- 6.8 Noise hazard.

7. Engineering Economics

- 7.1 Cash flow analysis.
- 7.2 Project evaluation indicator
- 7.3 Payback period.
- 7.4 Risk analysis.
- 7.5 Taxation system in Nepal.
- 7.8 Energy Tariff.

8. Project Management

- 8.1 Project Planning and Scheduling.
- 8.2 Capital Planning and Budgeting.
- 8.3 Project Monitoring and control

9. Organizational Management.

- 9.1 Internal Organization.
- 9.2 Management Information System.
- 9.3 Motivation and Leadership.
- 9.4 Personal Management.
- 9.5 Familiarization with procurement guidelines and standard of World Bank, ADB.
- 9.6 Preparation of Contract documents, specifications, condition of contract and other contractual procedure.

10. Electric Energy System Management.

- 10.1 Electric Power Utility Organization.
 - 10.2 Economic Analysis and Control of Power Utility.
 - 10.3 Prediction of Electric Load Levels and Changes.
 - 10.4 Scheduling to Meet Generation Requirements.
 - 10.5 Real-time Economic assessment of generation and energy dispatch.
 - 10.6 Concept of Grid Code
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