

लोक सेवा आयोग
नेपाल इन्जिनियरिङ्ग सेवा, इलेक्ट्रिकल समूह, जनरल इलेक्ट्रिकल उपसमूह, राजपत्रांकित द्वितीय श्रेणी,
खुला र आन्तरिक प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम
द्वितीय पत्र: प्राविधिक विषय

- 1. Electrical Machine.**
 - 1.1 Transformers and Instrument Transformers
 - 1.2 DC Machine: generators and motors
 - 1.3 Synchronous Generators.
 - 1.4 Synchronous Motor.
 - 1.5 Induction Motor
 - 1.6 Induction generator.
- 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 Electronics.**
 - 5.1 Power electronics device.
 - 5.2 Single phase and three-phase ac to dc conversion.
 - 5.3 Single phase and three phase dc to ac conversion
 - 5.4 HVDC power transmission.
- 6. Power Plants.**
 - 6.1 Hydropower potential
 - 6.2 Hydropower plant.
 - 6.3 Substation layout.
 - 6.4 Turbine types and application.
 - 6.5 Pumped storage plant.
 - 6.6 Environmental impacts of steam, gas, nuclear, wind and solar power plants.

- 7. Instrumentation.**
 - 7.1 Theory of measurements.
 - 7.2 Transducers.
 - 7.3 Electrical signal transmission and processing.
 - 7.4 Non-electrical signal transmission.
 - 7.5 Digital instrumentation.
 - 7.6 Recording instrument.
 - 8. Safety Engineering.**
 - 8.1 Effects of non-ionizing magnetic fields on human body.
 - 8.2 Physical effect of electric shock.
 - 8.3 Safety rules and regulations.
 - 8.4 Safety tools and devices.
 - 8.5 Earthing and shielding technique.
 - 8.6 Fire hazards.
 - 8.7 Fire fighting techniques and equipment.
 - 8.8 Noise hazard.
 - 9. Engineering Economics**
 - 9.1 Cash flow analysis.
 - 9.2 Project evaluation indicator
 - 9.3 Payback period.
 - 9.4 Risk analysis.
 - 9.5 Taxation system in Nepal.
 - 9.6 Energy Tariff.
 - 10. Project Management**
 - 10.1 Project Planning and Scheduling.
 - 10.2 Capital Planning and Budgeting.
 - 10.3. Project Monitoring and control
 - 11. Organizational Management.**
 - 11.1 Internal Organization.
 - 11.2 Anagement Information System.
 - 11.3 Motivation and Leadership.
 - 11.4 Personal Management.
 - 11.5 Familiarization with procurement guidelines and standard of World Bank, ADB.
 - 11.6 Preparation of Contract documents, specifications, condition of contract and other contractual procedure.
 - 12. Electric Energy System Management.**
 - 12.1 Electric Power Utility Organization.
 - 12.2 Economic Analysis and Control of Power Utility.
 - 12.3 Prediction of Electric Load Levels and Changes.
 - 12.4 Scheduling to Meet Generation Requirements.
 - 12.5 Real-time Economic assessment of generation and energy dispatch.
 - 12.6 Concept of Grid Code
-