

नेपाल आयल निगम लिमिटेड

तह ५ प्राविधिक, बरिष्ठ सहायक, ओभरसियर (मेकानिकल, सिभिल, इलेक्ट्रिकल) पदको
खुल्ला प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

- शैक्षिक योग्यता: मान्यता प्राप्त शिक्षण संस्थाबाट इलेक्ट्रिकल ईन्जिनियरिङ्ग विषयमा डिप्लोमा (त्रिभुवन विश्वविद्यालय द्वारा मान्यता प्राप्त) वा सो सरह उत्तीर्ण ।
- लिखित परीक्षाको विषय, पूर्णाङ्क, परीक्षा प्रणाली, प्रश्न संख्या, अंकभार समय र उत्तीर्णाङ्क निम्नानुसार हुनेछ ।

परीक्षा	विषय	पूर्णाङ्क	परीक्षा प्रणाली	प्रश्न संख्या	प्रति प्रश्न अंकभार	समय	उत्तीर्णाङ्क
लिखित	सेवा सम्बन्धी	१५०	वस्तुगत बहुउत्तर	५०	१	३ घण्टा	५३
			छोटो उत्तर	८	१०		
			लामो उत्तर	२	१०		

- वस्तुगत बहुउत्तर परीक्षा प्रणालीमा प्रत्येक प्रश्नका चारवटा सम्म संभाव्य उत्तर दिइनेछ । जसमध्ये एउटा सही उत्तरमा (✓) चिन्ह लगाउनु पर्ने वा सही उत्तरको वर्णानुक्रम लेख्नु पर्नेछ ।
- परीक्षाको माध्यम नेपाली वा अंग्रेजी भाषा हुनेछ ।
- लिखित परीक्षामा उत्तीर्ण भएका उम्मेदवारहरूलाई मात्र अन्तर्वार्तामा सहभागी हुन आमन्त्रित गरिनेछ ।

सेवा सम्बन्धी (इलेक्ट्रिकल ईन्जिनियरिङ्ग)

1. Electric Circuit

Definition, Unit, Explanation and applications of Ohm's Law and Kirchoff's Law, Connection of resistors in series, parallel and series parallel Combination

2. Electro magnetism and Electrostatics

Definition and formation of hysteresis loop, force on a current carrying conductor placed in magnetic field, Self Inductance, Factors affecting the inductance of coil, Capacitor, Factors affecting the capacitance of capacitor, Time Constant ($T=RC$)

3. A. C. Fundamentals

Comparison between A.C. & D.C. Voltage and current, Generation of A. C. emf, Frequency, Angular velocity, phase & phase difference, A. C. Circuit with R. L. C. use of J-operator in circuit analysis

4. Fundamental principles of Star and Delta connection of Three phase Windings, Effect of unbalanced load in three phase system, Voltage drop, Principles and applications of Super Position Theorem, Thevenin's theorem and Norton's theorem

5. Objective of earthing of Power system, Causes of Over voltages and its protection, Neutral earthing, Body earthing , Lightning Arrestors - Types, Ratings and Characteristics, applications & locations
6. **Principles of A. C. Transformer**
Operating principle, connecting load, No load operation, Reactance, Losses and Efficiency, Cooling, Parallel operation of Single phase and Three phase transformer, Tap changing, Noises and Temperature Rise
7. **D. C. Generator**
Introduction and Principle of operation, constructional details, types, Losses and efficiency, Parallel operation of d. c. generators
8. **Ammeters and voltmeters**
Principle of operation, Power factor meter, General concept of measurement of Power, Energy, Frequency
9. Operating Principle, characteristics, construction features of Current Transformer and Potential Transformer and their application
10. General concept of load factor, maximum demand, diversity factor, system and line losses, power factor corrections, measurement of resistance, inductance and capacitance
11. **Generation of Electrical Energy**
Types of generating plants, Diesel and Hydro (Working principle, equipments, Bus bars and Reactors, Automatic Voltage Regulator, Circuit Breakers, CTs, PTs, Relays etc.) 3
12. Lay out concept of Sub-stations and Power-stations (Cabling, auxiliary plants-such as batteries etc., Fire protection and grounding system)
13. **Transmission Lines**
Introduction-Overhead lines and Underground cables, Types of cables, Selection of cables & Selection criteria, Mechanical and electrical design of Overhead lines, Sag, Tension, Earthing, Corona, Skin effect, Connection Schemes of distribution system
14. Principle of operation of D. C. Motor-Types, Torque, Losses and efficiency, speed control, speed-torque characteristics
15. Introduction and types of single phase A. C. Motor (Motors and their characteristics for particular service-Domestic use.)

16. Introduction, Types, Constructional details and principle of operation of Synchronous Generator (Alternator) and Synchronous Motor, Parallel operation and Synchronizing of Alternator
17. Principles of Illumination (Primary and Secondary illumination, street lighting)
18. Fundamentals of Protection systems
Fuses, MCB Isolators, Contactors, Circuit Breakers - Classification, Construction
Operating principle
19. Communication
20. Principles of cost estimate for distribution system for domestic use
21. Three phase induction motor
Construction, Principle of operation, torque speed characteristics, stand still and running condition, method of starting
22. Basic Electronics
Characteristics of diode, transistor and thyristor, Rectifier and filter, inverter, speed control of DC and AC motor by using thyristor