राष्ट्रीय सूचना प्रविधि केन्द्र
प्राविधिक राजपत्र अनंतिक प्रथम श्रेणी इलेक्ट्रिकल टेक्निक्सन वा सो सरहको पदको खुल्ला
प्रतियोगितात्मक परीक्षाको पाद्यक्रम

प्रथम चरण: लिखित परीक्षा योजना (Examination Scheme)

<table>
<thead>
<tr>
<th>विषय</th>
<th>पूर्णाङ्क</th>
<th>उत्तराङ्क</th>
<th>परीक्षा प्रणाली</th>
<th>प्रश्न संख्या x अंकबार</th>
<th>समय</th>
</tr>
</thead>
<tbody>
<tr>
<td>सेवा सम्बन्धि</td>
<td>100</td>
<td>40</td>
<td>वस्तुत्गत बहुउत्तर (Multiple Choice)</td>
<td>50 x 2 = 100</td>
<td>45 मिनेट</td>
</tr>
</tbody>
</table>

द्वितीय चरण

<table>
<thead>
<tr>
<th>विषय</th>
<th>पूर्णाङ्क</th>
<th>परीक्षा प्रणाली</th>
</tr>
</thead>
<tbody>
<tr>
<td>व्यक्तिगत अन्तर्वार्ता</td>
<td>20</td>
<td>मौखिक</td>
</tr>
</tbody>
</table>
1. **Electric Circuit**
   Definition, Unit, Explanation and applications of Ohm's Law and Kirchhoff's Law, Connection of resistors in series, parallel and series parallel Combination

2. **Electro magnetism and Electro statics**
   Definition and formation of hysteric 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**

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, Thevenis'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.)
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 or 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. Importance of Communication in power system

20. Principles of cost estimate for distribution system for domestic

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