

लोक सेवा आयोग
नेपाल नागरिक उड्डयन प्राधिकरण, प्राविधिक, इलेक्ट्रिकल इन्जिनियरिङ, चौथो, सहायक पदको खुला
प्रतियोगितात्मक लिखित परीक्षा
२०८३/०४/०९

पत्र : द्वितीय

समय : २ घण्टा ३० मिनेट

पूर्णाङ्क : १००

विषय : सेवा सम्बन्धी

प्रत्येक Section को उत्तर छुट्टाछुट्टै उत्तरपुस्तिकामा लेख्नुपर्नेछ । अन्यथा उत्तरपुस्तिका रद्द हुनेछ ।

Section "A"

50 Marks

1. Differentiate between electric charge, electric potential and potential difference. Derive the relationship between current, voltage and resistance. 3+2=5
2. Compare hydroelectric and diesel power plants based on cost, reliability, maintenance and use in emergency supply (like airports). 5
3. Explain the difference between AC and DC motor. 5
4. Describe different types of conductors used in overhead transmission and distribution lines. 5
5. Explain how a changeover switch works with its type and application. 5
6. Mention the working, function and application of magnetic contractors. 5
7. With help of a suitable figure and relevant equations, explain how a traditional electromechanical energy meter works. 10
8. Why is a lightning arrestor necessary in transmission and distribution systems? Describe the working principle of a metal oxide varistors (MOV) type lightning arrestor with a sketch. 5+5=10

Section "B"

50 Marks

9. Draw a connection of an Ammeter and a Voltmeter. State the measuring procedure of each of them. 3+2=5
10. List out the safety precaution while working in electric circuit, chemical and fire hazard. 5
11. What is the role of inspection, testing and record keeping in electrical system maintenance procedures? Write the general procedures involved in preventive maintenance. 3+2=5
12. For a single phase 230V system, determine the size and the length of the cable for domestic lighting. Consider 1kW of active load and <3% of permissible voltage drop. 5
13. Describe PAPI and APAPI light lamps in terms of light colour, numbers, usage and cost. 5
14. What are the maintenance requirements of aeronautical ground lighting systems? Mention. 5

Contd...

15. Answer the followings:

5+(2+1.5+1.5)=10

- a) Explain different types of building wiring systems and their suitability for airport installations.
- b) A building lighting load consists of:
- 8 lamps of 100W
 - 4 socket loads of 500W each

Calculate:

- i) Total Load
- ii) Total current at 230V
- iii) Suitable rating of MCB

16. Describe the construction, location and purpose of Runway turn pad light, Approach light and Apron flood light. How do these lights improve airport operations during night and low-visibility conditions? Explain.

5+5=10

- The End -