लोक सेवा आयोग

नेपाल विद्युत प्राधिकरण, प्राविधिक, सिभिल, सिभिल, पाँचौ, सुपरभाइजर पदको खुला प्रतियोगितात्मक लिखित परीक्षा

२०८०।०१।२३

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. How do you balance the traverse using compass rule? Discuss. 5
2. What are the main ingredients of cement? Describe their functions briefly. 1+4=5
3. What are shear force and bending moment diagram? Explain relationship between them. 2+3=5
4. List out major differences between pipe flow and open channel flow. 5
5. Enumerate at least three situations in which a doubly reinforced beam becomes necessary. 5
6. Explain the factors that affect the strength of concrete. 5
7. Define soil compaction. Why is it necessary? Explain briefly the various methods of compaction of soil with neat sketches. 1+2+7=10
8. Describe balanced section, under reinforced section and over reinforced section with diagram. Write moment of resistance formula for under reinforced and over reinforced sections and also explain the features of both sections. 4+2+4=10

Section : "B" **50 Marks**

9. Explain the purpose of analysis of rates for civil works in hydropower project. 5
10. How can causalities and damages to the manpower at hydropower construction sites be minimized? Explain briefly. 5
11. What factors do you consider while selecting a route for an overhead power transmission line? 5
12. Describe the possible types of power losses in distribution system in Nepal. 5
13. Answer the followings: (4+2)+4=10
    a) Describe one method of determination of the safe bearing capacity of soil at site. What will be the difference in the applicability of the result if the soil is (i) clay (ii) sand?
    b) What type of foundation would you propose for a multi-storied office building in black cotton soil? Discuss with your opinion.
14. Prepare the followings: 5+5=10
    a) Quantities of material required of 12mm thick (1:6) cement plastering per $10m^2$ in brick wall.
    b) Rate analysis of plain cement concrete (1:3:4). Assume suitable rates of materials and labor.
15. What is an elementary profile of a gravity dam? Discuss various types of spillways with neat sketches and justifications of applications and use. 3+7=10

- The End -