

नेपाल सरकार
शिक्षक सेवा आयोग

निम्न माध्यमिक तह, तृतीय श्रेणी, शिक्षक पदको खुला प्रतियोगितात्मक विषयगत परीक्षा - २०८२

विषय: विज्ञान

पूर्णाङ्क: १००

समय: ३ घण्टा

उत्तीर्णाङ्क: ४०

सबै प्रश्नहरू अनिवार्य छन् । प्रत्येक खण्डका लागि बेग्लाबेग्लै उत्तरपुस्तिका प्रयोग गर्नुपर्नेछ, अन्यथा उत्तरपुस्तिका रद्द हुनेछ

Section -A

1. a) State Newton's Law of Gravitation. Two objects of masses 5Kg, and 400 grams are placed 200 cm. apart. Calculate the gravitational force between them. What will happen to the force, if the distance between them is doubled?	[2+2+2]
b) How would you perform a simple experiment to engage students on this topic? Explain it step by step.	[4]
2. While demonstrating an electromagnet, a student asks why the nail attracts pins only when the circuit is completed. How would you explain the working of an electromagnet? Design an experiment to show its properties. What method would you use to assess students' conclusions.	[3+4+3]
3. Suppose you are going to teach a lesson on 'Solar Eclipse'. a) Construct two specific objectives. b) Explain any three interactive instructional activities. c) How would you measure the learning outcomes of this topic achieved or not by the students?	[2+6+2]
4. Chordates share certain fundamental features, yet they exhibit a wide diversity in structure and functions across different classes. Explain the major distinguishing factors of the phylum chordate. Then, critically compare the adaptations of three different chordates classes (Pisces, Aves and Mammalia) for locomotion, respiration and reproduction.	[5+5]
5. Compare and contrast the science curriculum and textbook of Grade -8.	[5+5]

Section -B

6. a) What is chemical bonding? Explain the types of hydrogen bonding with suitable examples.	[2+3]
b) What is periodic law? Explain the classification of elements based on electronic configuration.	[1+4]
7. a) Explain the second law of thermodynamics. Illustrate your answer with examples.	[5]
b) Distinguish between linear expansion and superficial expansion with formulas and examples.	[2.5+2.5]

8. Describe different metallurgical processes associated with extraction of copper from its ore and write its uses.	[8+2]
9. a) Differentiate between DNA and RNA. Why is DNA a better genetic material than RNA? Explain. b) What is mutation? Explain the causes and effects of genetic mutation.	[3+2] [2+3]
10. In a rapidly developing Nepali urban area, analyze how escalating solid waste and water pollution disrupt local ecosystems and major bio-geo-chemical cycle. Propose a comprehensive and justifiable plan for integrating waste management, water quality improvement, and restoring environmental balance for long-term sustainability.	[10]