

नेपाल सरकार
शिक्षक सेवा आयोग

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

तह : माध्यमिक

पूर्णाङ्क : १००

समय : ३ घण्टा

उत्तीर्णाङ्क : ४०

विषय : विज्ञान

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

Group (A)

1. Define pressure. Develop a lesson plan using ABC model to teach the topic "Liquid Pressure" of grade 10. What strategies would you use to teach Archimedes' Principle? Explain.	2+5 +3
2. What is climate change? What types of approaches would be applicable to teach "Natural Disaster" at the Secondary level? Justify your answer with a suitable example. Also, mention any two higher ability level objectives of teaching this topic at the Secondary level.	2+6 +2
3. You are going to teach about carbon dioxide gas at the Secondary level. Describe the preparation process of carbon dioxide gas in a laboratory with a labelled diagram. Mention any four properties of carbon dioxide gas; and explain how this topic can be taught using 5E approach.	3+2 +5
4. Define adaptation. Design an interactive activity to teach the topic "Adaptation of Plants and Animals." Construct a sample checklist to assess your students' understanding while teaching this lesson.	2+4 +4
5. Critically analyze the present Secondary level science curriculum (Grades 9-10) based on objectives, contents, teaching activities and assessment process. Also, suggest any two recommendations for its improvement.	2+2 +2+ 2+2

Group (B)

6. Demonstrate Carnot's theorem using the second law of thermodynamics. Differentiate between isothermal, adiabatic, isobaric and isochoric processes.	6+4
7. a) Differentiate between interference and diffraction. Prove that refractive index of a transparent medium is equal to tangent of angle of polarization for medium. b) State Gauss theorem. Apply the theorem to calculate the electric field intensity due to infinite sheet of charge.	2.5 +2. 5 2+3

8. Give reason why gold is preferred over iron for making jewellery, even though both are metals. Describe the steps involved in extraction of iron from its ore with a labelled diagram.	3+7
9. a) Differentiate porifera and coelenterate with respect to level of organization and classify the latter. b) Define ecosystem. Why are the areas surrounding national parks in Nepal are declared as buffer zones?	5 2+3
10. Explain the tissue culture. Describe sterilization techniques in plant tissue culture.	3+7
