Government of Nepal
Teacher Service Commission
Open Competitive Examination, 2078
Sample Question

Level: Lower Secondary **Full Marks:100**
Subject: Science **Pass Marks: 40**
Time: 3hrs

Attempt All Questions

Section A

1.

a. What are the basic concepts students should be familiar with before developing the concept of total internal reflection? How do you engage your students in different activities to develop the basic concepts? (3+2)

b. How would you integrate the concept of real and virtual image in the daily life situation in classroom? (2.5+2.5)

2. The concept of atmospheric pressure is applied while using different equipment in our daily life.

a. Write any two examples of how you can link students' daily life experiences to teach the concept of atmospheric pressure? (5)

b. Write down any two activities to demonstrate atmospheric pressure in classroom. (5)

3. Weather and climate are often taken as similar words but they actually have different meanings. Design a project work that engages students to differentiate between climate and weather. (10)

Section B

4. The first quantitative relationship between the volume and pressure of gas was studied experimentally by Robert Boyle in 1661.
    a. State and explain Boyle's law. How can the law be verified graphically? (1+3+2)
    b. What is the significance of Boyle's law to the mountaineers? A woman has an initial lungs volume of 2.75 L, which is filled with air at an atmospheric pressure of 1.02 atm. If she increases her lungs volume to 3.25 L without inhaling additional air, what is the pressure in her lungs? (2+2)

5. 'Despite the level of carbon dioxide at 356 ppm in the atmosphere, which is relatively in significant non-pollutant, and not a serious environmental concern, the students of environmental science worry about it. Clear this statement in terms of greenhouse effect. Also describe their contribution in global warming. (5+5)

6. The process of extracting metals from their ores is called metallurgy. There is no single universal method for the extraction of all metals.
    a. Describe briefly the various methods employed for isolation of metals from their Sulphide ores. (5)
    b. Give an appraisal of the methods used for reduction of metallic oxides to metals. (5)

द्रष्टव्य: पाठ्यक्रमको खण्ड क बाट पूर्णाङ्क ५० का ५ प्रश्न र खण्ड ख बाट पूर्णाङ्क ५० का ५ प्रश्न गरी १०० पूर्णाङ्ककको परीक्षाका लागि यस्तै प्रकृतिका प्रश्नहरू दिइने छ।