

Government of Nepal  
Teacher Service Commission  
Open Competitive Exam 2078  
Sample Question

Level: Secondary  
Subject: Science

Full Marks: 100  
Pass Marks: 40  
Time: 3hrs

Attempt all questions.

**Section: A**

1. Teacher is a facilitator and mentor for the students. If your classrooms have auditory, visual and kinesthetic learners,
  - a) Write at least two activities for each of the above learners to develop the concept of life cycle of the honey bee. (6)
  - b) Write two assessment tools for each of the visual and kinesthetic learners to check their understanding of the concept of honeybee's life cycle. ( 4 )
  
2. As a well-trained science teacher, you are asked to teach Newton's Law of Gravitation in secondary level.
  - a) Design two teaching learning activities to teach Newton's law of Gravitation. (2.5 +2.5)
  - b) Which method do you think is the best method to teach Newton's law of Gravitation and why? "No single method could be the best method and a good teacher should try to imbibe the good qualities of all method instead of a single method". Justify the above statement. ( 2+3)
  
3. The rural areas of Government school face the problems of lack of proper lab facilities, teaching materials and so on. Suppose you are a newly appointed science teacher in this context,
  - a) How do you engage the students theoretically and practically in learning science? Put forward any three ways to develop the concept of acid, base and salts. (2+3)
  - b) Prepare three test items of different cognitive levels (comprehension, application, and analysis) on the topic "Structure and properties of matter" to assess the understanding level of the students. (5)

**Section: B**

4. What are the basic postulates of Bohr's model of atomic structure? Describe the line of H- spectrum, successes and failures of Bohr's theory. ( 4+ 6)
5. "Every perfect engine working reversibly between same temperature limits has the same efficiency whatever be the working substance." Justify the statement on the basis of Carnot cycle. (6)  
A Carnot engine working between 800K has a work output of 800J per cycle. How much heat energy is supplied to the engine from the source? (4)
6. What would happen when dominant gene fail to show complete dominance? What example can you give to verify it? (4+2)  
How can you differentiate it from co-dominance? Explain with suitable examples. (4)
- द्रष्टव्यः पाठ्यक्रमको खण्ड क बाट पूर्णाङ्क ५० का ५ प्रश्न र खण्ड ख बाट पूर्णाङ्क ५० का ५ प्रश्न गरी १०० पूर्णाङ्कको परीक्षाका लागि यस्तै प्रकृतिका प्रश्नहरू दिइने छ।