CAPITAL COLLEGE AND RESEARCH CENTER
Koteshwor, Kathmandu

WEEKLY EXAM 2079/05/29

Subject: Chemistry **GRADE XI (SCIENCE)** **F.M.: 40**

Time : 1:30 hrs. **P.M.: 20**

SET A **10×1 = 10**

1. The correct order of radii is
   a) $N < Be < B$ b) $Na < Li < K$
   c) $F^- < O^{2-} < N^{3-}$ d) $Fe^{+3} < Fe^{+2} < Fe^{+5}$
2. Which pair of the elements has same chemical properties?
   a) 3, 11 b) 13, 22 c) 2, 4 d) 4, 24
3. Which has maximum 1st IP?
   a) C b) N c) B d) O
4. When the product of pressure and volume is plotted against pressure for a given amount of the gas, the line obtained is
   a) Parallel to X-axis b) Parallel to Y-axis
   c) Linear with positive slope d) Linear with negative slope
5. Tetrahedral carbon has proposed by
   a) Louis Pasteur b) Berzelius
   c) Wohler d) Van't Hoff and Le-Bell
6. At what temperature, the volume of gas is supposed to be zero?
   a) 0° C b) 0° F c) 0 K d) None of these
7. The functional group of aldehyde is
   a) -CHO b) -COOH c) -OH d) >C=O
8. The Vital Force Theory was proposed by
   a) Einstein b) Wohler
   c) Berzelius d) Lavoisier
9. Use of hot air balloons in sports and meteorological observations is an application of
   a) Boyle's law b) Charle's law
   c) Kelvin's law d) None of these
10. The graph of Boyle's law is also called
    a) Hypertherm b) Hypotherm
    c) Isotherm d) None of these

Attempt all the questions: **6×5=30**

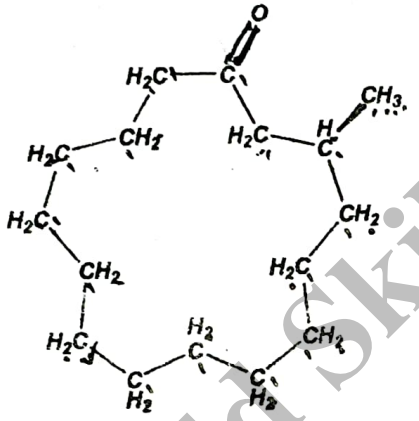
1. What is meant by catenation and tetra-covalency property of carbon? Why are organic compounds more in number than inorganic compounds? Give reasons. [3+2]

2.A. Muscone is valuable in perfumery. It is naturally obtained from glandular secretion of musk deer which is an endangered animal. Now, it is prepared in the laboratories. The structural formula of muscone is given.

a) What is the functional group present in the muscone? Also write its structure. [1]

b) What is the molecular formula of muscone? [1]

c) It this homocyclic or heterocyclic compound? Explain. [1]



B. What is Vital Force Theory? Also, write its limitation. [1+1]

3. Define ionization energy of an element? How does it vary in the periodic table? What are the factors affecting ionization energy of an element?[1+1+3]

4. State modern periodic law. What are the advantages of modern periodic table over Mendeleev's periodic table? Compare the size of F- and Na+ with the atomic size of Neon. [1+2+2]

5. State Charles's law. The volume of a given mass of gas at 17 °C is 400 mL. What temperature will be attained in order to i. double the volume and ii. Reduce the volume to one-half? [1+2+2]

6. Graphically show the temperature at which a certain mass of gas occupies zero volume. What is this temperature called? A spherical balloon of 21cm diameter is to be filled with hydrogen at NTP from a cylinder containing the gas at 20 atmospheres and 27°C. If the cylinder can hold 2.82 litres of water, calculate the number of balloons that be filled up. [2+3]

'Best of Luck'