

GREENLAWNS SCHOOL, WORLI  
TERMINAL EXAMINATION 2018  
CHEMISTRY

Std: IX  
Date: 24.09.2018

Marks: 80  
Time: 2 hrs

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Answer to this paper must be written on the answer booklet provided to you.  
The first 10 minutes are to be spent in reading the Question paper. The time given at the head of this paper is the time allowed for writing the answers. All questions are compulsory.  
Do not waste paper. Leave only one line after each answer.

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I A) Name the following: [5]

- i. An element other than hydrogen and oxygen which exists in the isotopic form.
- ii. A metal exhibiting valency +2 and +3.
- iii. A greenhouse gas which contains carbon and hydrogen only.
- iv. The gas obtained on thermal decomposition of calcium carbonate.
- v. The element in group 17 of the periodic table which is a liquid at ordinary temperatures.
- vi. pH of pure water.
- vii. The product formed by synthesis of carbon dioxide and water.
- viii. A pentahydrate salt.
- ix. A covalent molecule having two lone pair of electrons.
- x. The period having elements from atomic number 11 to 18.

B) Fill in the blanks: [5]

- i. According to Modern Periodic Law, the physical and chemical properties of elements are periodic functions of their \_\_\_\_\_
- ii. Ozone layer is located in the \_\_\_\_\_ above the earth.
- iii. A chemical reaction which proceeds with absorption of heat energy is called an \_\_\_\_\_ reaction.
- iv. Atomic weights are expressed in \_\_\_\_\_
- v. In the element  $^{39}\text{X}_{19}$ , 39 represents \_\_\_\_\_
- vi. If an element has 5 electrons in its outermost shell, then it is likely to be \_\_\_\_\_
- vii. In a covalent compound, the bond is formed due to \_\_\_\_\_ of electrons.
- viii. If the formula of the nitride of a metal X is  $\text{XN}$ , then the formula of its sulphate will be \_\_\_\_\_
- ix. Rain, snow, fog and dew are the \_\_\_\_\_ forms of deposition of acid rain.
- x. The elements of group 13 to 16 are called \_\_\_\_\_ elements.

C) Explain the following terms: [5]

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|----------------------|---------------|----------------|
| i. Greenhouse effect | iii. Groups   | v. Mass number |
| ii. Valency          | iv. Acid rain |                |

D) Distinguish between the following: [5]

- i. Transition and inner transition elements
- ii. Disadvantages of solar and wind energy
- iii. Electrolytic and photochemical decomposition
- iv. Relative atomic mass and relative molecular mass
- v. Lone pair and shared pair of electrons

- E) Give balanced equations for the following: [5]
- Thermal decomposition of zinc nitrate.
  - Oxidation of food substances in body cells releasing carbon dioxide.
  - Conversion of iron to iron (III) chloride by synthesis.
  - A chemical reaction accompanied by change of colour.
  - Addition of lead nitrate solution to sodium sulphate solution.
- F) Give reasons for the following:
- Metals form positive ions. [1]
  - A catalytic converter in an internal combustion engine reduces pollution. [2]
  - The Rutherford model of an atom could not provide stability to the nucleus. [2]
- G) Write briefly on the following as specified after each: [5]
- Ozone depletion (Two control measures)
  - Global warming (Two impacts)
  - Acid rain (Two effects on soil)
  - Greenhouse effect (Two gases)
  - C.N.G (Two advantages)
- H) Solve the following numericals:
- Calculate the percentage of iron in  $K_3Fe(CN)_6$ . [2]  
[K=39, Fe=56, C=12, N=14]
  - Calculate the percentage of water of crystallisation in hydrated copper sulphate. [Cu=63.5, S=32, O=16, H=1] [3]
- II A) Name two elements whose properties were correctly predicted by Mendeleev. [2]  
Mention their present day name.
- B) Give two examples of each: [2]
- Chemical change by close physical contact
  - Chemical change by catalyst
- C) With the help of an atomic orbit structure diagram, explain the formation of: [6]
- Ammonia
  - Carbon tetrachloride
  - Water
- III A) Mention three defects of Mendeleeff's Periodic Table. [3]
- B) An element 'M' has three electrons more than the noble gas. Give the formula of its: (Note: Do not identify the real M) [3]
- Phosphate
  - Oxide
  - Sulphite
  - Chloride
  - Hydroxide
  - Nitrate
- C) Describe Bohr's atomic model of an atom. [3]

- D) According to the activity series, which of the following can successfully displace hydrogen? K/Na/Pb/Ag/Pt/Fe/Al [1]
- IV A) State the main chemical responsible for 80% of ozone depletion. Mention briefly its role in ozone depletion [2]
- B) Write the main causes of acid rain. [4]
- C) Write a brief note on the discovery of cathode rays. Draw a neat labelled diagram of a cathode ray tube. [4]
- V A) Under what conditions can hydrogen be made to combine with: [4]
- |              |              |
|--------------|--------------|
| i. Nitrogen  | iii. Sulphur |
| ii. Chlorine | iv. Oxygen   |
- Name the products in each case and write the equation for each reaction.
- B) Arrange the elements of the halogen family in an increasing order of the number of shells. [1]
- C) Arrange the elements of the 2<sup>nd</sup> period in the decreasing order of valence electrons. [1]
- D) What type of bond formation exists between the elements of Group 1 and 17? Why? [1]
- E) Identify the element present in the following groups and periods: [3]
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|-------------------------|
| i. Group 1, Period 4    |
| ii. Group 14, Period 3  |
| iii. Group 16, Period 2 |
| iv. Group 17, Period 3  |
| v. Group 18, Period 1   |
| vi. Group 2, Period 3   |

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