

LIONS SCHOOL MIRZAPUR

UT Test (2020-2021)

CLASS-XI

TIME: 1Hour

SUBJECT-CHEMISTRY (043)

MM: 25

GENERAL INSTRUCTION:

All questions are compulsory.

Marks given against each questions.

SET- B

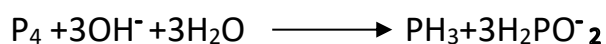
Q.1.Property of the alkaline earth metals that increases with their atomic number: (1)

- (a)solubility of their hydroxides in water
- (b)solubility of their sulphates in water
- (c)ionisation energy
- (d)electronegativity

Q.2.Calgon is an industrial name given to: (1)

- (a)normal sodium phosphate
- (b)sodium metaaluminate
- (c)sodium hexametaphosphate

Q.3.Identify the correct statement with reference to the given reaction : (1)



- (a)Phosphorus is undergoing reduction only.
- (b)Phosphorus is undergoing oxidation only.

(c) Phosphorus is undergoing oxidation as well as reduction.

(d) Hydrogen is undergoing neither oxidation nor reduction.

(d) hydrated sodium aluminium silicate

Q.4. Deuterium oxide is used in nuclear reactors as : (1)

(a) fuel

(b) moderator

(c) Neutron absorber

(d) source of α -particles

Q.5. The oxidation number of an element in a compound is evaluated on the basis of certain rules. Which of the following rules is not correct in this respect?

(1)

(a) The oxidation number of hydrogen is always +1.

(b) The algebraic sum of all the oxidation numbers in a compound is zero.

(c) An element in the free or the uncombined state bears oxidation number zero.

(d) In all its compounds, the oxidation number of fluorine is -1.

Q.6. In Ostwald's process for the manufacture of nitric acid, the first step involves the oxidation of ammonia by oxygen to give nitric oxide gas and steam. What is the maximum weight of nitric oxide that can be obtained starting only with 10g ammonia and 20g oxygen? (2)

Q.7.(a) What is the oxidation state of K in KO_2 ? (2)

(b) What is KO_2 paramagnetic?

Q.8. Write the names of isotopes of hydrogen. What is the mass ratio of these isotopes? (2)

Q.9(a) Describe the trends in the alkali metals under the following heads: (3)

(i) Melting and boiling points

(ii) Atomic and ionic size

(iii) Reactivity

Or

(b) Account for the following:

(i) Alkali metals have great affinity for oxygen.

(ii) The hydroxides of alkali metals are strong bases.

Q.10. Assign oxidation number to the underlined elements in each of the following species: (3)

(a) $\text{H}_4\underline{\text{P}}_2\underline{\text{O}}_7$

(b) $\text{Na}\underline{\text{B}}\underline{\text{H}}_4$

(c) $\text{H}_2\underline{\text{S}}_4\underline{\text{O}}_6$

Q.11. Discuss the principle and method of softening of hard water by synthetic ion exchange resins. (3)

Q.12. Balance the following redox reactions by ion electron method : (5)

(a) $\text{MnO}_4^-(\text{aq}) + \text{I}^-(\text{aq}) \longrightarrow \text{MnO}_2(\text{s}) + \text{I}_2(\text{s})$ (in basic medium)

(b) $\text{MnO}_4^-(\text{aq}) + \text{SO}_2(\text{g}) \longrightarrow \text{Mn}^{2+}(\text{aq}) + \text{HSO}_4^-(\text{aq})$ (in acidic medium)

Or

What happens when (give chemical equation also)?

(i) Burning magnesium is introduced into a jar of CO_2 .

(ii) Excess of CO_2 is passed through lime water.

(iii) Lithium is heated in atmosphere of nitrogen.

(iv) Potassium is heated in excess of oxygen.

(v) Potassium superoxide reacts with water.