DELHI PUBLIC SCHOOL NEWTOWN
SESSION 2024-25
MONDAY TEST

CLASS: IX **FULL MARKS: 40**
SUBJECT: CHEMISTRY **DATE: 15.07.2024**

General Instructions:

- **The paper consists of four printed pages.**
- **Read the questions very carefully.**
- **Answers should be to the point.**
- **Question numbers should be copied carefully while answering the questions.**

SECTION A
(Attempt all questions)

Question 1 **[8]**

Choose the correct answer:

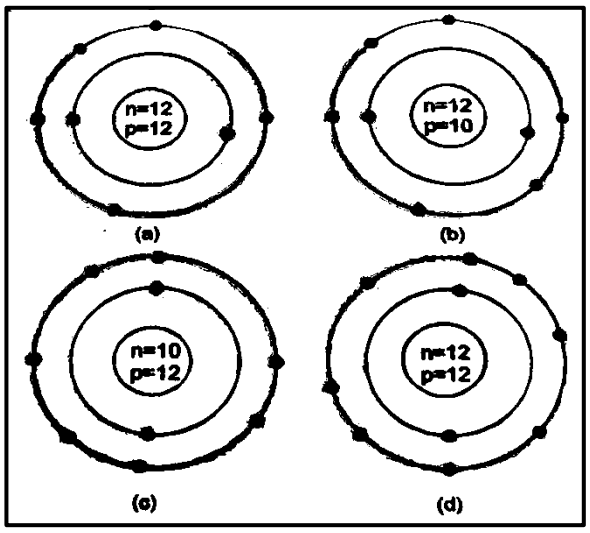
a) Based on the reactions given below, which is the correct decreasing order of the reactivity of the metals?

(i) $Zn + CuSO_4 \rightarrow ZnSO_4 + Cu$
(ii) $Cu + 2AgNO_3 \rightarrow Cu(NO_3)_2 + 2Ag$
(iii) $Zn + FeSO_4 \rightarrow ZnSO_4 + Fe$
(iv) $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$

(A) Cu > Ag > Fe > Zn
(B) Fe > Zn > Cu > Ag
(C) Zn > Fe > Cu > Ag
(D) Ag > Cu > Zn > Fe

b) Assertion: In a redox reaction, electron releasing species acts as an oxidizing agent.
Reason: In a redox reaction, oxidation and reduction reactions takes place simultaneously
(A) Both assertion and reason are correct, and the reason is correct explanation of assertion.
(B) Both assertion and reason are correct, but the reason is not correct explanation for assertion.
(C) Assertion is correct, but reason is incorrect.
(D) Assertion is incorrect, but reason is correct.

c) Identify the magnesium ion from the figure given below:



(A) (d)
(B) (c)
(C) (b)
(D) (a)

d) Which of the following matches the electronic configuration of a noble gas?
(i) O^{2-} (ii) O^{2+} (iii) N^{3-} (iv) Mg^{+} [Atomic No. O =8 , N = 7, Mg = 12]

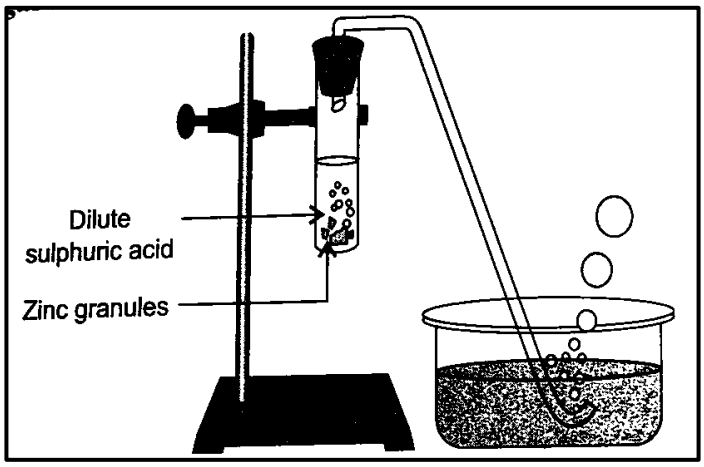
(A) (i) and (iv)
(B) (ii) and (iii)
(C) (i) and (iii)
(D) (iii) and (iv)

e) Which of the following metal will not react with concentrated caustic soda solution to produce hydrogen?
(A) Aluminium
(B) Zinc
(C) Lead
(D) Iron

f) Identify 'x', 'y', and 'z' in the following balanced chemical equation:
$x\ Zn(NO_3)_2 \rightarrow y\ ZnO + zNO_2 + O_2$
(A) 2, 4, 2
(B) 2, 2, 4
(C) 2, 4, 4
(D) 4, 4, 2

g) A student took sodium sulphate solution in a test tube and added barium chloride solution to it. He observed that an insoluble substance has formed. The colour and molecular formula of the insoluble substance is:
(A) Dull white, Ba_2SO_4
(B) Curdy white, $Ba(SO_4)_2$
(C) Dense white, $BaSO_4$
(D) Chalky white, $Ba_2(SO_4)_3$

h) Study the diagram given below and identify the gas formed in the reaction:



(A) Carbon dioxide which turns lime water milky.
(B) Oxygen which relights a glowing splinter.
(C) Sulphur dioxide which has suffocating and choking odour.
(D) Hydrogen which extinguishes a glowing splinter with a pop sound.

Question 2

(i) Name the following: [4]
a) A compound which decomposes in presence of sound.
b) A compound which slows the rate of decomposition of hydrogen peroxide.
c) A red solid which on thermal decomposition leaves behind a silvery liquid.
d) A nitrate which on heating leaves no residue.

(ii) The formula of the oxide of a metal M is M_2O_3. [4]
a) State the valency of M.
b) State the formula of the compound formed by the combination of:
(i) M with nitrogen.
(ii) M with chlorine.
c) Calculate the molecular mass of the sulphate of M
[M = 27, S = 32, O = 16]

(iii) Complete the following equations and identify them as oxidation or reduction: [4]

Reaction	Complete reaction	Oxidation/reduction
$Mg \rightarrow Mg^{2+}$	……...	…….
$F \rightarrow F^{-}$	……	…….
$O \rightarrow O^{2-}$	……	…….
$Fe \rightarrow Fe^{2+}$	……	……

SECTION B
(Attempt all questions)

Question 3 [5]
An orange crystalline solid [P] on heating decomposes with flashes of light producing a neutral oxide [Q], a gas [R] and leaves behind a fluffy green residue [S].
a) Identify P, Q, R and S.
b) Write a balanced chemical in support of your answer.

Question 4 [5]
With respect to industrial preparation of hydrogen answer the following:

a) Write balanced chemical equation for the preparation of water gas.
b) Write equation for the exothermic reaction.
c) Name the catalyst and the promoter used in this process.
d) How is carbon monoxide removed from hydrogen?

Question 5 **[5]**

Study the table given below, and answer the questions:

Element	Protons	Neutrons	Electrons
A	19	21	19
B	17	18	17
C	17	20	17
D	18	22	18

a) Which two elements will have same chemical properties?
b) Which two elements have same physical properties?
c) Write the formula of the compound formed between A and C.
d) Which element is chemically inert?
e) Which of the above element will gain electron to attain the electronic configuration of D?

Question 6 **[5]**

(i) Give reasons for the following:
- **a) Silver nitrate is stored in coloured reagent bottles.**
- **b) Nitric acid is not used for the laboratory preparation of hydrogen.**
- **c) Neon is chemically inert.**

(ii) What would you observe when:
- **a) Chlorine is bubbled through potassium iodide solution.**
- **b) Lead nitrate crystals are heated.**