Assignment

Class - 12 **Subject:Chemistry (Unit 2and 3)**

Unit 2- P Block elements –I

Part - A

I. Choose the correct answer.

1. An aqueous solution of borax is
   a) Neutral b) Acidic c) Basic d) Amphoteric

2. Which of the following metals has the largest abundance in the earth's crust?
   a) Aluminium b) Calcium c) Magnesium d) Sodium

3. In diborane, the number of electrons that accounts for banana bonds is
   a) Six b) Two c) Four d) Three

4. The element that does not show catenation among the following p-block elements is
   a) Carbon b) Silicon c) Lead d) Germanium

5. Carbon atoms in fullerene with formula C_{60} have
   a) sp^3 hybridised b) sp hybridised
   c) sp^2 hybridised d) partially sp^2 and partially sp^3 hybridised

6. Oxidation state of carbon in its hydrides
   a) + 4 b) - 4 c) + 3 d) + 2

7. Which of the following is not sp^2 hybridised?
   a) Graphite b) Grapheme c) Fullerene d) Dry ice

8. The geometry at which carbon atom in diamond are bonded to each other is
   a) Tetrahedral b) Hexagonal c) Octahedral d) None of these

9. Thermodynamically the most stable form of carbon is
   a) Diamond b) Graphite c) Fullerene d) None of these

10 .The compounds that is used in nuclear reactors as protective shields and control rods is
   a) Metal borides b) Metal oxides c) Metal carbonates d) Metal carbide

Part – B

II.Very Short Answer.

1. What is catenation ? Describe briefly the catenation property of carbon.
2. Give the uses of silicones.
3. $AlCl_3$ behaves like a lewis acid. Substantiate this statement.
4. Write a note on metallic nature of p-block elements.
5. CO is a reducing agent . Justify with an example.

Part – C

III. Short Answer.

1. How will you identify borate radical?
2. Give the uses of Borax.
3. Give the structure of CO and CO_2.
4. Write a note on Fisher Tropsch Synthesis.
5. Write a short note on anamolous properties of the first element of p-block.

Part – D

IV.Write in detail.

1. Describe the structure of diborane.
2. Write a note on zeolites.

Unit 3- P Block elements –II

Part - A

I. Choose the correct answer.

1. An element belongs to group 15 and 3 rd period of the periodic table, its electronic configuration would be

   a) $1s^2\ 2s^2\ 2p^4$ b) $1s^2\ 2s^2\ 2p^3$

   c) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^2$ d) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^3$

2. P_4O_6 reacts with cold water to give

   a) H_3PO_3 b) $H_4P_2O_7$

   c) HPO_3 d) H_3PO_4

3. The basicity of ortho phosphorus acid (H_4PO_3) is

   a) 3 b) 2

   c) 1 d) 4

4. Among the following, which is the strongest oxidizing agent?

   a) Cl_2 b) F_2

   c) Br_2 d) I_2

5. Most easily liquefiable gas is

   a) Ar b) Ne

   c) He d) Kr

6. Which is the strongest acid among the hydrogen halide

   a) HI b) HF

   c) HBr d) HCl

7. When copper is heated with Conc HNO_3 it produces

   a) $Cu(NO_3)_2$, NO and NO_2 b) $Cu(NO_3)_2$ and N_2O

   c) $Cu(NO_3)_2$ and NO_2 d) $Cu(NO_3)_2$ and NO

8. The oxidation state of oxygen in OF_2 is_____

a) +2 b) -2

c) +1 d) 0

9. The radioactive inert gas is _____

a) He b) Ne

c) Ar d) Rn

10. An example for interhalogen compound is _____

a) ICl b) BrF_3

c) IF_7 d) All the above

Part – B

II.Very Short Answer.

1. What is inert pair effect?
2. What are inter halogen compounds? Give examples.
3. Mention any two uses of chlorine.
4. Give a test for sulphate ion.
5. Write down the hybridisation and shape for the compounds of Xenon

a) XeF_4 b) XeO_3

Part – C

III. Short Answer.

1. Give the reason to support the sulphuric acid (H_2SO_4) is a dehydrating agent.
2. Give the uses of helium.
3. Write the structural formula and molecular formula for the following compounds. a) Nitric acid b) Phosphoric acid

4. Why HF is a weak acid, where as the binary acids of all others halogens are strong acids ?

5. Write the reason for the anamolous behaviour of nitrogen.

Part – D

IV.Write in detail.

1. Explain Deacons process.

2. Complete the following reactions.

   i. $Na_2SiO_3 + 6HF \rightarrow$

   ii. $XeO_2F_2 + SiO_2 \rightarrow$

   iii. $P_4 + NaOH + H_2O \rightarrow$

   iv. $NaCl + MnO_2 + H_2SO_4 \rightarrow$

   v. $KClO_3 \rightarrow$