



## CHEMISTRY

### BOOKS - NTA MOCK TESTS

### THE P-BLOCK ELEMENTS TEST

#### Multiple Choice Questions

1.  $(NH_4)_2Cr_2O_7$  on heating evolved gas, which is also given by

A. heating  $NH_4NO_2$

B. heating  $NH_4NO_3$

C.  $Mg_3N_2 + H_2O$

D.  $Na + H_2O_2$

**Answer: A**

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2. Which acid makes iron passive?

- A. Sulphuric acid
- B. Fuming nitric acid
- C. Hydrofluoric acid
- D. Hydrochloric acid

**Answer: B**

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3. The gas evolved on heating  $CaF_2$  and  $SiO_2$  with concentrated  $H_2SO_4$ , on hydrolysis gives a white gelatinous precipitate. The precipitate is:

- A. Silicic acid
- B. Calcium fluorosilicate
- C. Hydro fluorosilicic acid
- D. Silica gel

**Answer: C**



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4. The silicate anion in the mineral kinoite comprises of a chain of three  $SiO_4$  tetrahedra, that share corners with adjacent tetrahedra. The charge of the silicate anion is:

A.  $-4$

B.  $-8$

C.  $-6$

D.  $-2$

**Answer: B**



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5. Which halogen oxide from the following is used in the estimation of carbon monoxide in automobile exhaust gases?

A.  $Cl_2O_7$

B.  $I_2O_5$

C.  $ClO_2$

D.  $BrO_3$

**Answer: B**

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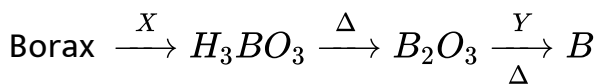
6. Which of the following statement is correct?

- A.  $F_2$  has higher dissociation energy than  $Cl_2$ .
- B. F has higher electron affinity than Cl.
- C. HF is a stronger acid as compared to HCl.
- D. Boiling point increases down the group, for halogens.

**Answer: D**

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7. Borax gets converted into crystalline boron by the following steps:



X and Y , respectively are:

- A. HCl and Mg
- B. HCl and C
- C. C and Al
- D. DHCl and Al

**Answer: D**



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8. Which is not true about borax ?

- A. It is a useful primary standard for titrating against acids

- B. One mole of borax can be used as a buffer
- C. Aqueous solution of borax can not be used as buffer
- D. it is made up of two triangular  $BO_3$  units and two tetrahedral  $BO_4$  units

**Answer: C**



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9.  $(Si_2O_5)_n^{2n-}$  anion is obtained when:

- A. no oxygen of a  $SiO_4^{4-}$  tetrahedron is shared with another  $SiO_4^{4-}$  tetrahedron.
- B. one oxygen of a  $SiO_4^{4-}$  tetrahedron is shared with another  $SiO_4^{4-}$  tetrahedron.

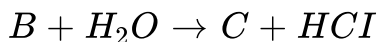
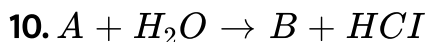
C. two oxygen of a  $SiO_4^{4-}$  tetrahedron are shared with another  $SiO_4^{4-}$  tetrahedron.

D. three oxygen of a  $SiO_4^{4-}$  tetrahedron are shared with another  $SiO_4^{4-}$  tetrahedron.

**Answer: D**



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Compound (A), (B) and (C) will be respectively :





D.  $PCl_3$ ,  $POCl_3$ ,  $H_3PO_4$

**Answer: B**



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11. Which of the following halides cannot be hydrolysed ?

(I)  $TeF_6$  (II)  $SF_6$  (III)  $NI_3$  (IV)  $NF_3$

Choose the correct code:

A. III and IV

B. I, II and III

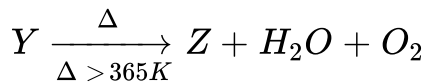
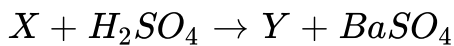
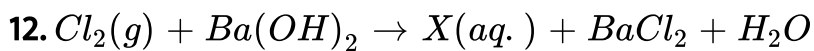
C. I, II and IV

D. II and IV

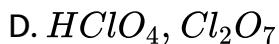
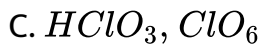
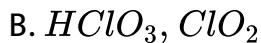
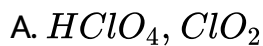
**Answer: D**



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Y and Z are respectively:

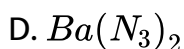
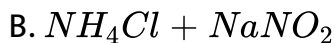
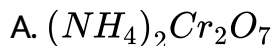


**Answer: B**



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13. Among the following compounds , which one on heating do not produce  $N_2$ ?

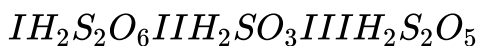


Answer: C



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14. Identify the correct order of increasing number of  $\pi$  – bonds in structures of the following molecules.



B.  $II < III < I$

C.  $II < I < III$

D.  $I < III < II$

**Answer: B**



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15. When an inorganic compound X having  $3c - 2e^-$  as well as  $2c - 2e^-$  bonds react with  $\text{NH}_3$  gas at a certain temperature, gives a compound Y, isostructural with benzene. Compound X with ammonia at a high temperature produces a substance Z, then

A. X is  $\text{BH}_3$ , Y is  $\text{B}_2\text{N}_2\text{H}_3$ , Z is inorganic Benzene

B. X is  $\text{B}_2\text{H}_6$ , Y is  $\text{B}_3\text{N}_3\text{H}_6$ , Z is Boron nitride

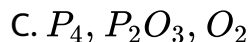
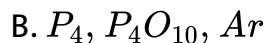
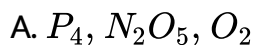
C. X is borax, Y is  $\text{B}_2\text{O}_3$ , Z is inorganic Benzene

D. Insufficient Data.

**Answer: B**

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**16.** A tetra-atomic molecule X on reaction with nitrogen oxide (Oxidation State = 1) produces two substances Y and Z. Y is a dehydrating agent while compound Z is a diatomic gas which shows almost inert gas behavior. The substances X, Y and Z are



**Answer: D**

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17. Select the correct statement:

- A. Basicity of phosphorous acid is three.
- B. Perbromic acid is having only one peroxy linkage.
- C.  $\beta - SO_3$  has a cyclic structure.
- D. Borazine is having zero dipole moment.

**Answer: D**

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18.  $I_2$  dissolves appreciably in an aqueous solution of KI forming

- A.  $I_3^+$  ions

B.  $I^+$  ions

C.  $I_3^-$  ions

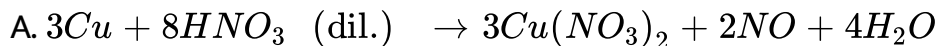
D.  $I^{3-}$  ions

**Answer: C**

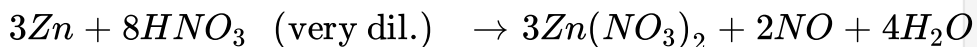


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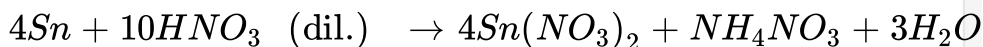
**19.** In which of the following reactions, the product(s) given is/are not correct?

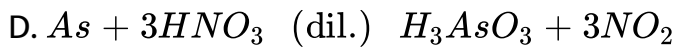


B.



C.



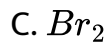


**Answer: B**



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20. Which among the following is the most reactive?



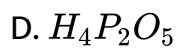
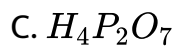
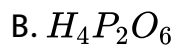
**Answer: A**



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21. Which of the following compounds has a P-P Bond?



**Answer: B**



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22. Match the following:

|    | List-I                          | List-II   |
|----|---------------------------------|---|
| P. | $\text{SiO}_2$                  | 1. Reacts with HF   |
| Q. | $[\text{Co}(\text{CN})_6]^{3-}$ | 2. Pseudo halide  |
| R. | $\text{I}^-$                    | 3. Gives compound with $\text{Cu}^{2+}$ via redox reaction. |
| S. | $\text{N}_2$                    | 4. Inert towards reaction                                   |

A.  $\begin{matrix} P & Q & R & S \\ 4 & 3 & 2 & 1 \end{matrix}$

B.  $\begin{matrix} P & Q & R & S \\ 1 & 2 & 3 & 4 \end{matrix}$

C.  $\begin{matrix} P & Q & R & S \\ 3 & 2 & 4 & 1 \end{matrix}$

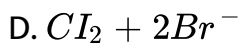
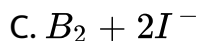
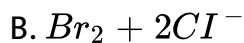
D.  $\begin{matrix} P & Q & R & S \\ 2 & 4 & 1 & 3 \end{matrix}$

**Answer: B**



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23. As per study of electrochemical series, which of the following reaction is non-spontaneous?



**Answer: B**



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24. A:P can form  $PF_5$ , but N cannot form  $NF_5$ .

R:N is more electronegative than that of fluorine.

A. Both assertion and reason are true and the reason is the correct explanation of the assertion.

B. Both assertion and reason are true, but the reason is not the correct explanation of the assertion.

C. Assertion is true but reason is false. Correct Answer

D. Both assertion and reason are false statements.

**Answer: C**



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**25.** Molecular sizes of  $ICI$  and  $Br_2$  are nearly same but boiling point of  $ICI$  is about  $40^\circ C$  higher than  $Br_2$ , Because

A.  $I-Cl$  is weaker than  $Br-Br$  bond

B. Ionisation energy of  $Br$  atom is less than  $I$  atom

C.  $ICI$  is a polar where as  $Br_2$ , atom is a non-polar molecule

D.  $ICI$  is non-polar where as  $Br_2$ , is polar

**Answer: C**

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**26.** Which of the following arrangements is the incorrect representation of the property indicated with it?

A.  $Br < Cl < F$  : Electronegativity

B.  $Br < F < Cl$  : Electron-affinity

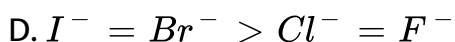
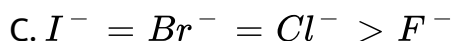
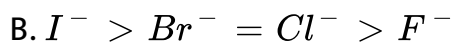
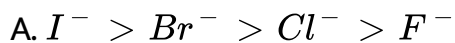
C.  $Br_2 < Cl < F_2$  : Bond energy

D.  $Br_2 < Cl_2 < F_2$  : Oxidising strength

**Answer: C**

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27. The correct order of polarizability of  $I^-$ ,  $Br^-$ ,  $Cl^-$  and  $F^-$  ions is:



**Answer: A**



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28. Which among the following phosphorus is most reactive?

A. Red phosphorus

B. White phosphorus

C. Scarlet phosphorus

D. Violet phosphorus

**Answer: B**

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29. The acid obtained when  $SO_2$  is mixed with water is:

A.  $H_2SO_2$

B.  $H_2SO_4$

C.  $H_2SO_4$

D. None of above

**Answer: B**

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30. Which of the following statements is incorrect?

A.  $Ge(OH)_2$  is amphoteric.

B.  $GeO_2$  is weakly acidic.

C.  $GeCl_4$  in HCl forms  $(GeCl_6)^{2-}$  ion.

D. Si forms stable complex of  $[SiCl_6]^{2-}$  due to presence of vacant d-orbitals.

**Answer: D**



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