



12th Science : Chemistry  
Elements of Groups 16, 17 and 18,

DATE:

TIME: 1 hour

MARKS: 25

SEAT NO:

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**Note:-**

1. All Questions are compulsory.
2. Numbers on the right indicate full marks.

**Section A**

**Q.1 Select and write the correct answer.**

**(4)**

1. Hydrofluoric acid  
A) is a weak acid      B) is a strong acid  
C) does not exist      D) is a good oxidizing agent
2. Which of the following orders regarding the acid character of hydrogen halides in the aqueous medium is correct?  
A)  $\text{HCl} < \text{HBr} < \text{HI}$       B)  $\text{HCl} < \text{HBr} < \text{HI}$   
C)  $\text{HCl} > \text{HBr} > \text{HI}$       D)  $\text{HCl} > \text{HBr} < \text{HI}$
3. The number of elements in Group 18 is  
A) 4                      B) 5  
C) 6                      D) 7
4. Hydrides of group 16 are weakly acidic. The correct order of acidity is  
A)  $\text{H}_2\text{O} > \text{H}_2\text{S} > \text{H}_2\text{Se} > \text{H}_2\text{Te}$       B)  $\text{H}_2\text{Te} > \text{H}_2\text{O} > \text{H}_2\text{S} > \text{H}_2\text{Se}$   
C)  $\text{H}_2\text{Te} > \text{H}_2\text{Se} > \text{H}_2\text{S} > \text{H}_2\text{O}$       D)  $\text{H}_2\text{Te} > \text{H}_2\text{Se} > \text{H}_2\text{O} > \text{H}_2\text{S}$

**Q.2 Answer the following.**

**(3)**

1. Helium is used in diving equipment.
2. Why oxygen shows different anomalous properties than other elements of group 16?
3. How are the supersonic jet aeroplanes responsible for the depletion of ozone layers?

**Section B**

**Attempt any Four**

- Q.3 Write the order of thermal stability of hydrides of group 17 elements. **(2)**
- Q.4 Write the reaction of conc.  $\text{H}_2\text{SO}_4$  with sugar. **(2)**
- Q.5 What is the action of chlorine on the following: **(a)** Fe **(b)** Excess of  $\text{NH}_3$ ? **(2)**
- Q.6 List down the chemical properties of  $\text{XeF}_2$  **(2)**
- Q.7 Give reasons : Nitrogen does not form pentahalide. **(2)**
- Q.8 Draw structures of  $\text{XeF}_6$ ,  $\text{XeO}_3$ ,  $\text{XeOF}_4$ ,  $\text{XeF}_2$  **(2)**

**Section C**

**Attempt any Two**

Q.9 Write a short note on: Physical properties of Group 17 elements. (3)

Q.10 What are the characteristics of inter halogen compounds? (3)

Q.11 Complete the following table:

| Element         | O                | O               | S                | F        | Se               | Se               | Te               | Cl       |
|-----------------|------------------|-----------------|------------------|----------|------------------|------------------|------------------|----------|
| Compound        | H <sub>2</sub> O | OF <sub>2</sub> | H <sub>2</sub> S | HF       | SeO <sub>2</sub> | SeO <sub>3</sub> | TeF <sub>6</sub> | HOCl     |
| Oxidation State | -2               | (a) ____        | (b) ____         | (c) ____ | (d) ____         | +6               | (e) ____         | (f) ____ |

**Section D**

**Attempt any One**

Q.12 Explain: Oxoacids of sulphur. (4)

Q.13 Draw the structure of ICl, ClF<sub>3</sub>, BrF<sub>3</sub>, BrF<sub>3</sub>, ClF<sub>5</sub> (4)