

Fill in the blanks:

6. Group V element forms trihalides and _____ halides.
7. Oxygen is a _____ while the other members of VIA are solids.
8. The halogens belong to _____ group.
9. The type of H-bonding exist in O-Nitrophenol _____.
10. The main element present in chlorophyll is _____.

State True or False:

11. NH_3 and PH_3 molecules can act as Lewis bases towards H^+ .
12. The oxidation state of oxygen in its compounds is -2 .
13. Except Radon all other noble gases occur throughout the universe in molecular state.
14. According to Lewis concept an acid is a substance which can accept electrons.
15. Sodium and potassium can be estimated by flame photometry.

Match the following:

- | | |
|-----------------|----------------|
| 16. ns^2np^3 | - a) Acids |
| 17. Diatomic | - b) Magnesium |
| 18. Inertgas | - c) oxygen |
| 19. chlorophyll | - d) Nitrogen |
| 20. Protondonor | - e) Radon |

SECTION – B

Answer all the questions:

5 x 4 = 20

21. a. Explain the following giving proper explanation

- (i) NH_3 has more ionic character than PH_3
- (ii) Why do phosphorous and arsenic atoms do not form P_2 and AS_2 species while nitrogen form N_2 ?

OR

b. Why Nitrogen form only trihalides and not pentahalide? Explain.

22. a. Account for the -2 oxidation state of oxygen.

OR

b. Explain the classification of oxides of oxygen group elements based on their chemical behaviour.

23. a. Explain why HF is the weakest acid.

OR

b. Discuss the structure of XeF_2

24. a. Discuss Lowry – Brosted theory of acids and bases.

OR

b. Define H-bonding. Explain the types of H-bonding with suitable example.

25. a. Explain the composition and components of soil.

OR

b. How will you estimate the carbon by volumetric method?

SECTION – C

Answer any FOUR questions:

4 x 15 = 60

26. Discuss the preparation, properties and structure of hydrazine.
27. Write a note on
- (a) Anomalous behaviour of oxygen
 - (b) Structure and uses of H_2SO_4
28. a. How will you isolate noble gases from atmosphere?
b. Discuss the structure and shape of the following.
- (i) XeF_4
 - (ii) XeOF_4
 - (iv) ICl
29. Explain HSAB concept. Discuss its applications in detail.
30. a. Write the role of N, P, K, Ca and Fe in plant Nutrition.
b. Explain how potassium is estimated using flame photometry.
