Dipole moment

21. Fluorine is more electronegative than either boron or phosphorus. What conclusion can be drawn from the fact that BF_3 has no dipole moment but PF_3 does

(a) BF_3 is not spherically symmetrical but PF_3 is

(b) BF_3 molecule must be linear

(c) The atomic radius of P is larger than the atomic radius of B

(d) The BF_3 molecule must be planar triangular

22. Which molecule does not show zero dipole moment

(a) BF_3 (b) NH_3

(c) CCl_4 (d) CH_4

23. The dipole moment of *HBr* is $1.6 \times 10^{-30} cm$ and interatomic spacing is 1Å. The % ionic character of *HBr* is

(a) 7 (b) 10

(c) 15 (d) 27

24. Non-polar solvent is

(a) Dimethyl sulphoxide

(b) Carbon tetrachloride

(c) Ammonia

(d) Ethyl alcohol

25. Which shows the least dipole moment

(a) CCl_4 (b) $CHCl_3$

(c) CH_3CH_2OH (d) CH_3COCH_3

26. Which molecule has zero dipole moment

(a) H_2O (b) *AgI*

(c) $PbSO_4$ (d) *HBr*

27. The dipole moment is zero for the molecule

(a) Ammonia

(b) Boron trifluoride

(c) Sulphur dioxide

(d) Water

28. N_2 is less reactive than CN^- due to

(a) Presence of more electrons in orbitals

(b) Absence of dipole moment

(c) Difference in spin quantum no

(d) None of these

29. In a polar molecule, the ionic charge is 4.8×10^{-10} e.s.u. If the inter ionic distance is one Å unit, then the dipole moment is

(a) 41.8 debye (b) 4.18 debye

(c) 4.8 debye (d) 0.48 debye

30. Which of the following is a polar compound

(a) HCl (b) H_2Se

(c) CH_4 (d) HI

31. Which of the following has no dipole moment

(a) CO_2 (b) SO_3

(c) O_3 (d) H_2O

32. Which of the following is non-polar

(a) PCl_5 (b) PCl_3

(c) SF_6 (d) IF_7

33. Identify the non-polar molecule in the set of compounds given : HCl, HF, H_2, HBr

(a) H_2 (b) HCl

(c) HF, HBr (d) HBr

34. Dipole moment is shown by

(a) 1, 4-dichlorobenzene

(b) cis 1, 2-dichloroethene

(c) $trans$1, 2-dichloroethene

(d) $trans$1, 2-dichloro-2-pentene

35. If *HCl* molecule is completely polarized, so expected value of dipole moment is 6.12D (deby), but experimental value of dipole moment is 1.03D. Calculate the percentage ionic character

(a) 17 (b) 83

(c) 50 (d) Zero

(e) 90