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SET 2 –

1. The full form of VSEPR theory is –
 - a) Valence Shell Electron Pair Repulsion
 - b) Valence Shell Electron Position Rule
 - c) Valence Sharing Electron Principle Rule
 - d) Variable Shape Energy Pair Repulsion
2. According to VSEPR theory, molecular shape depends on –
 - a) repulsion between valence shell electron pairs
 - b) attraction between nuclei
 - c) size of atoms
 - d) energy of orbitals
3. The shape of molecule with AB_2 type and no lone pair on central atom is –
 - a) Linear
 - b) Bent
 - c) Trigonal planar
 - d) Tetrahedral
4. The shape of AB_3 molecule with no lone pair is –
 - a) Trigonal planar
 - b) Tetrahedral
 - c) Pyramidal
 - d) Bent
5. The shape of AB_4 molecule with no lone pair is –
 - a) Tetrahedral
 - b) Square planar
 - c) Pyramidal
 - d) Linear
6. The shape of AB_5 molecule with no lone pair is –
 - a) Trigonal bipyramidal
 - b) Octahedral
 - c) Square planar
 - d) Linear
7. The shape of AB_6 molecule is –
 - a) Octahedral
 - b) Square planar
 - c) Trigonal planar
 - d) Tetrahedral
8. SF_6 molecule is –
 - a) Octahedral
 - b) Trigonal bipyramidal
 - c) Linear
 - d) Square pyramidal
9. XeF_4 molecule is –
 - a) Square planar
 - b) Tetrahedral
 - c) Trigonal pyramidal
 - d) Linear
10. NH_3 molecule is –
 - a) Trigonal pyramidal
 - b) Tetrahedral
 - c) Trigonal planar
 - d) Linear
11. H_2O molecule is –
 - a) Bent
 - b) Linear
 - c) Tetrahedral
 - d) Trigonal
12. The shape of PCl_5 molecule is –
 - a) Trigonal bipyramidal
 - b) Octahedral
 - c) Tetrahedral
 - d) Pyramidal

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13. ClF_3 molecule has the shape –
a) T-shaped b) Linear c) Square planar d) Trigonal planar
14. I_3^- ion has the shape –
a) Linear b) Bent c) T-shaped d) Square planar
15. XeF_2 molecule is –
a) Linear b) Bent c) T-shaped d) Trigonal planar
16. XeF_6 molecule is –
a) Distorted octahedral b) Octahedral c) Trigonal bipyramidal d) Linear
17. Which of the following has a tetrahedral geometry?
a) CH_4 b) NH_3 c) H_2O d) BF_3
18. Which of the following has a trigonal planar geometry?
a) BF_3 b) CH_4 c) NH_3 d) H_2O
19. Hybridisation of carbon in CH_4 is –
a) sp^3 b) sp^2 c) sp d) dsp^2
20. Hybridisation of carbon in C_2H_4 is –
a) sp^2 b) sp^3 c) sp d) dsp^2
21. Hybridisation of carbon in C_2H_2 is –
a) sp b) sp^2 c) sp^3 d) dsp^3
22. The number of sigma and pi bonds in C_2H_4 is –
a) $5\sigma, 1\pi$ b) $4\sigma, 2\pi$ c) $3\sigma, 3\pi$ d) $6\sigma, 2\pi$
23. The number of sigma and pi bonds in C_2H_2 is –
a) $3\sigma, 2\pi$ b) $5\sigma, 1\pi$ c) $4\sigma, 2\pi$ d) $2\sigma, 3\pi$
24. The number of sigma bonds in CH_4 molecule –
a) 4 b) 2 c) 3 d) 1
25. The bond angle in CH_4 molecule is –
a) 109.5° b) 120° c) 180° d) 90°
26. The bond angle in BF_3 is –
a) 120° b) 109.5° c) 180° d) 90°
27. The bond angle in CO_2 is –
a) 180° b) 120° c) 109.5° d) 90°

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28. The bond angle in NH_3 is approximately –
a) 107° b) 120° c) 109.5° d) 100°
29. The bond angle in H_2O is approximately –
a) 104.5° b) 109.5° c) 120° d) 90°
30. The number of lone pairs on central atom in NH_3 is –
a) 1 b) 2 c) 0 d) 3
31. The number of lone pairs on central atom in H_2O is –
a) 2 b) 1 c) 3 d) 0
32. Which molecule has no lone pair on the central atom?
a) BF_3 b) NH_3 c) H_2O d) ClF_3
33. The shape of CO_2 molecule is –
a) Linear b) Bent c) Trigonal planar d) Tetrahedral
34. The shape of SO_2 molecule is –
a) Bent b) Linear c) Tetrahedral d) Trigonal
35. The shape of O_3 molecule is –
a) Angular or bent b) Linear c) Trigonal d) Pyramidal
36. Which of the following molecules shows resonance?
a) O_3 b) H_2O c) CH_4 d) NH_3
37. The molecule with two lone pairs and two bond pairs is –
a) H_2O b) NH_3 c) CO_2 d) BF_3
38. sp^2 hybridisation results in –
a) Trigonal planar geometry
b) Tetrahedral geometry
c) Linear geometry
d) Octahedral geometry
39. dsp^2 hybridisation results in –
a) Square planar geometry
b) Tetrahedral
c) Trigonal planar
d) Octahedral
40. sp^3d hybridisation results in –
a) Trigonal bipyramidal
b) Octahedral
c) Linear

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- d) Trigonal planar
41. sp^3d^2 hybridisation results in –
a) Octahedral
b) Tetrahedral
c) Trigonal planar
d) Linear
42. XeF_4 shows which hybridisation?
a) sp^3d^2
b) sp^3
c) sp^3d
d) sp^2
43. Which of the following has dsp^3 hybridisation?
a) PCl_5
b) SF_6
c) XeF_4
d) ClF_3
44. The total number of electron pairs around Xe in XeF_4 is –
a) 6 b) 5 c) 4 d) 3
45. The geometry of XeF_4 molecule –
a) Square planar
b) Trigonal bipyramidal
c) Octahedral
d) Pyramidal
46. Which molecule has square pyramidal geometry?
a) BrF_5 b) SF_6 c) PCl_5 d) XeF_4
47. The shape of SF_4 molecule is –
a) Seesaw
b) T-shaped
c) Square planar
d) Trigonal planar
48. In NH_4^+ ion, hybridisation of N atom is –
a) sp^3
b) sp^2
c) sp
d) dsp^2
49. The shape of NH_4^+ ion is –
a) Tetrahedral
b) Pyramidal

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- c) Trigonal planar
- d) Linear

50. The number of π -bonds in benzene molecule –

- a) 3
- b) 6
- c) 2
- d) 4

Answer Key – Set 2

1-a 2-a 3-a 4-a 5-a 6-a 7-a 8-a 9-a 10-a
11-a 12-a 13-a 14-a 15-a 16-a 17-a 18-a 19-a 20-a
21-a 22-a 23-a 24-a 25-a 26-a 27-a 28-a 29-a 30-a
31-a 32-a 33-a 34-a 35-a 36-a 37-a 38-a 39-a 40-a
41-a 42-a 43-a 44-a 45-a 46-a 47-a 48-a 49-a 50-a