Section II Chemistry

31. Lassaigne's test is used for the detection of nitrogen by use of which compound?
(a) NH_2CONH_2 (b) NH_2NH_2Cl
(c) $NH_2CONHNH_2HCl$ (d) $C_6H_5NHNH_2HCl$

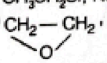
32. The size of nucleus is
(a) 10^{-10} m (b) 10^{-8} m (c) 10^{-3} m (d) 10^{-15} m

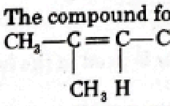
33. .... gas released, when zinc reacts with hydrochloric acid.
(a) Hydrogen chloride (b) Chlorine
(c) Hydrogen (d) Oxygen

34. Which is not electrophilic in nature?
(a) BH_3 (b) Cl^- (c) NO_3^- (d) H_3O^-

35. Reaction

$$CH_2=CH_2 \xrightarrow{HOCl} M \xrightarrow{R} \begin{array}{l} CH_2OH \\ | \\ CH_2OH \end{array}$$

molecule M and reagent R respectively are
(a) $CH_2Cl—CH_2OH$, *aq*. $NaHCO_3$
(b) CH_3CH_2OH, H_2SO_4
(c) CH_3CH_2Cl, NaOH
(d)  , heat

36. The compound formed as a result of compound
 reacts with $KMnO_4$
(a) $CH_3COCH_3 + CH_3COOH$ (b) CH_3COCH_3
(c) $CH_3CHO + CO_2$ (d) $CH_3COCH_3 + CH_3CHO$

37. Which metal oxide cannot be reduced by carbon?
(a) PbO (b) Al_2O_3 (c) Fe_2O_3 (d) ZnO

38. Which pair gives the same gaseous product by reacts with H_2O ?
(a) Na, Na_2O_2 (b) K, KO_2
(c) Ca, CaH_2 (d) Ba, BaO_2

39. Which metal react with very dilute HNO_3 to evolve hydrogen gas?
(a) Fe (b) Al (c) Mg (d) Cu

40. Which of the following does not react with O_2 directly?
(a) Na (b) Cl (c) P (d) S

41. Which of the following species contains 4 lone pair ?
(a) Cl^- (b) O^- (c) Na (d) Mg

42. A solution with H^+ ion concentration of 0.01 M has a pH of ....
(a) 3 (b) 1 (c) 2 (d) 7

43. The pH of stomach fluids is approximately.
(a) 5.3 (b) 1.4 (c) 7.4 (d) 8.2

44. Which element reacts with chlorine and forms more than one compounds?
(a) K (b) Zn
(c) Fe (d) Ca

45. Which increasing order of electronegativity of the given element is correct?
(a) Si, P, C, N (b) N, Si, C, P
(c) C, N, Si, P (d) P, Si, N, C

46. Which electronic ion have maximum size?
(a) F^- (b) O^{2-} (c) N^{3-} (d) Na^+

47. Which of the following is used finishing silvering of mirror?
(a) Pb (b) Ag (c) Na (d) Al

48. Which of following makes liquid soap?
(a) Ca (b) K (c) Na (d) Li

49. Which gas convert methanol (CH_3OH) to acetic acid (CH_3COOH) at high temperature and pressure with catalysts?
(a) N_2 (b) CO_2 (c) CO (d) O_2

50. A compound was found to contain nitrogen and oxygen in the ration 28 g : 80 g. The formula of the compound is
(a) N_2O_3 (b) N_2O_5 (c) NO (d) NO_3

51. 27 g of Aluminium will react completely with how many grams of oxygen?
(a) 32 (b) 16 (c) 8 (d) 24

52. In HCHO, oxidation number of carbon is
(a) 0 (b) + 2 (c) –2 (d) + 4

53. If molecular weight of $KMnO_4$ is M then its equivalent weight in acidic medium would be
(a) $\frac{M}{5}$ (b) $\frac{M}{3}$ (c) M (d) $\frac{M}{7}$

54. Which compound is an isomer of 2-methylpropane?
(a) *n*-butane (b) *n*-propane
(c) *n*-hexane (d) *n*-pentane

55. Which C—C bond length is minimum in the following compounds?
(a) C_2H_4 (b) C_2H_6
(c) CH_4 (d) $C \equiv C$

56. What was the first synthetically produced organic compound?
(a) NH_2CONH_2 (b) C_2H_5OH
(c) CH_3OH (d) CH_3COOH

57. Huckel's rule estimates whether a planar ring molecule will have aromatic properties, if number of electron has
(a) 4π (b) $(4\pi + 2n)$
(c) $(4n + 2\pi)$ (d) $(4\pi + 2)n$

58. Which of the following molecule is an optically active molecule?
(a) 2-chlorobutane (b) 1-propanol
(c) 1-butanol (d) 4-hydroxy heptane

59. A strong base can abstract an α-hydrogen from
(a) amine (b) ketone (c) alkene (d) alkane

60. How many sigma bonds in CH_4?
(a) 1 (b) 2 (c) 3 (d) 4

31.	(d)	32.	(d)	33.	(c)	34.	(b)	35.	(a)	36.	(a)	37.	(b)	38.	(c)	39.	(c)	40.	(b)
41.	(a)	42.	(c)	43.	(b)	44.	(c)	45.	(a)	46.	(c)	47.	(b)	48.	(b)	49.	(b)	50.	(b)
51.	(d)	52.	(a)	53.	(c)	54.	(a)	55.	(d)	56.	(a)	57.	(c)	58.	(a)	59.	(b)	60.	(a)