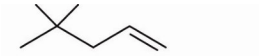
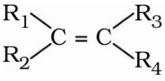
46.(C) $CH_3 - \underset{\underset{CH_3}{|}}{\overset{CH_3}{|}}{C} - CH_2$ is neopentyl group and $CH_2 = CH -$ is vinyl group 

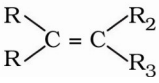
4, 4-dimethyl-1-pentene

47.(C) If nitrogen or sulphur is also present in the compound, the sodium fusion extract is first boiled with concentrated nitric acid to decompose cyanide or sulphide of sodium formed during Lassaigne's test. These ions would otherwise interfere with silver nitrate test for halogens.

48.(A) Compounds shown is (B), (C) and (D) are aromatic and are more resonance stabilized due to cyclic conjugation. While compound (A) is less resonance stabilized due to cross conjugation.

49.(B) Only stereogenic double bonds shows geometrical isomerism

 (stereogenic C = C bond) $(R_1 \neq R_2 \ \& \ R_3 \neq R_4)$

 (Not stereogenic C = C bond) $(R_2 \neq R_3)$

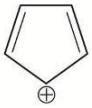
50.(A) Partition chromatography is based on continuous differential partitioning of components of a mixture between stationary and mobile phase. Paper chromatography is a type of partition chromatography.

51.(D) Kjeldahl method is not applicable to compounds containing nitrogen in nitro (NO_2) and azo $(N = N -)$ groups and nitrogen present in the ring (pyridine) as nitrogen of these compounds does not change to ammonium sulphate. [NCERT Class XI Part II/Page No. 358]

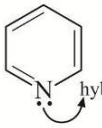
52.(B) II moves faster and has higher R_f value than I.

53.(A) Aniline and water are less soluble and aniline being more volatile can be separated by steam distillation while toluene and water by differential extraction. Water and sugar are separated by recrystalization.

54.(A)

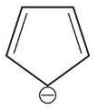


$4\pi e^- \Rightarrow$ Antiaromatic

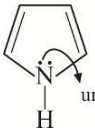


$6\pi e^- \Rightarrow$ Aromatic

hybridised (lone pair not involved in resonance)



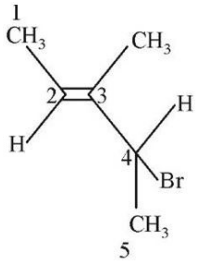
$6\pi e^- \Rightarrow$ Aromatic



$6\pi e^- \Rightarrow$ Aromatic

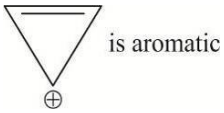
unhybridised (lone pair involved in resonance)

55.(D)



4-Bromo-3-methylpent-2-ene

56.(A) According to Huckel's rule of aromaticity :



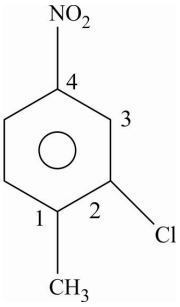
Because it is cyclic, planar and has 2π electrons in conjugation.

57.(D) Fact

58.(C)

V_2O_5	—	H_2SO_4
$TiCl_4$ / $Al(Me)_3$	—	Polyethylene
$PdCl_2$	—	Ethanal
Iron oxide	—	NH_3

59.(D)



2-chloro-1-methyl-4-nitrobenzene

60.(D)