1. The gas liberated by the electrolysis of Dipotassium succinate solution is :

(1) Ethyne

(2) Ethene

(3) Propene

(4) Ethane

Solution:

$(CH_2COO^-)_2 \rightarrow CH_2 = CH_2 + 2CO_2\,(g) + 2e^-$

$2H_2O + 2e^- \rightarrow 2OH^- + H_2\,(g)$

So the gas generated during electrolysis of Dipotassium succinate solution is ethene.

Hence option (2) is the answer.

2. Which one of the following classes of compounds is obtained by polymerization of acetylene?

(1) Poly-ene

(2) Poly-yne

(3) Poly-amide

(4) Poly-ester

Solution:

$nHC \equiv CH \rightarrow (\ CH = CH)_n$ poly-yne

Hence option (2) is the answer.

3.Which one of the following has the minimum boiling point?

(1) n-Butane

(2) 1-Butyne

(3) 1-Butene

(4) Isobutene

Solution:

Among the isomeric alkanes, the normal isomer has a higher boiling point than the branched-chain isomer. The higher the branching of the chain, the lower is the boiling point. The n-alkanes have more surface area in comparison to branched-chain isomers. So, intermolecular forces are weaker in branched-chain isomers. Hence they have lower boiling points in comparison to straight-chain isomers.

Hence option (4) is the answer.

4.The hydrocarbon which can react with sodium in liquid ammonia is

(1) $CH_3CH_2C \equiv CCH_2CH_3$

(2) $CH_3CH_2CH_2C \equiv CCH_2CH_2CH_3$

(3) $CH_3CH_2C \equiv CH$

(4) $CH_3CH \equiv CHCH_3$

Solution:

Terminal alkynes have acidic hydrogen. Terminal alkynes react with sodium in liquid ammonia to give ionic compounds.

Hence option (3) is the answer.