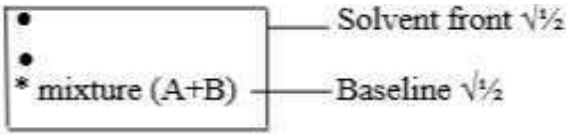
FORM FOUR CLUSTER KCSE MODEL 6

CHEMISTRY PAPER 2 ANSWERS

1.

(a) (i)



ii) It is more soluble in the solvent used. √½

It is less sticky on the paper used. √½

(iii) Method or process of separation of coloured components from a substance based on solubility in the solvent used and stickiness on the paper material used. √1

(b) Heat the mixture. √½ Cl NH4 sublimes√½ and collects on the cooler parts of the apparatus. √½

Anhydrous 2 CaCl remained behind. √1

(c) (i) Fractional distillation. √1

(ii) Put the mixture in a separating funnel√½ or burette and shake. Allow layers to form√½. Drain the bottom layer into a receiver √½ and drain the upper layer into a separate receiver. √½

2. (a)

(i) Just after U on the R.H.S.

(ii) E has a larger atomic radius than R. √

Atomic radii decrease across the period √ ½

due to increase in effective nuclear charge. √½

(iii) R. √1 Because R is the most electromagnetive/it gains electrons most easily. √1

(b)

(i) C. √1 Because it loses electrons most easily/it is the most electro positive. √1

(ii)

$=B_2E$√1

(c) Ionic or electrovalent. √

(d) The chloride of J has simple molecular structure √½ with covalent √½bonds while chloride of K has a giant ionic structure √½ with ionic bonds hence insoluble in organic solvents. √½

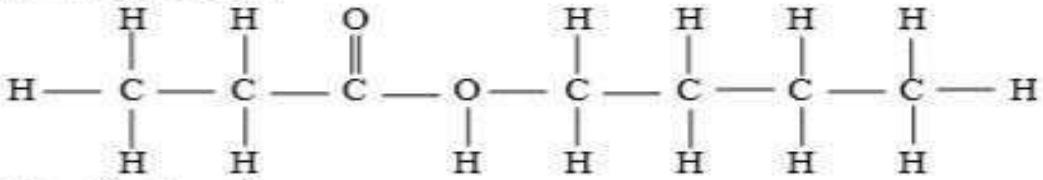
3.

(a) (i) Oxidation. √1
(ii) Dehydration. √1

(b) $CH_3CH_2COONa_{(s)} + NaOH_{(s)} \rightarrow Na_2CO_{3(s)} + CH_3CH_{3(g)}$ √1

(c) A - Potassium propanoate. √1
C- Butylpropanoate. √1
D- Chloroethane. √1
E - Prop-1-yne. √1

(d)



√1

(e) Esterification. √1

(f) -B is polypropene. √1
-Polymerisation. √1

4. (a)

(i) It is a solution that contains a maximum amount of solute at a given temperature. √1

(ii) It is the mass in grams of a substance that dissolves in 100g of water at a particular

temperature. √

(b) (i) Graph Axes (A1) Plotting (A2) Curve (C1) Extrapolate to touch vertical axis otherwise C½.

(ii) • •gms 125 • √1

(iii) Solubility at 400 water ggg 100/162 •• √1 Hence 62 g dissolves and 80-62 =18 g crystallizes out√1 (remain undissolved)

(c) $KNO_3 = 39 + 14 + 48 = 101$ √½

Solubility at $15^{\circ}C = 25.5\,g$ *per* $100\,g$ *of water* ± 0.1 √½

$100cm^3 \equiv 25.5\,g$

$1000cm^3 = \dfrac{1000 \times 25.5}{100} = 255\,g$ *per litre* $\equiv \dfrac{255}{100}$ *moles per litre* √½

$= 2.525M\,KNO_3$ √½

(d) (i) B. √1

(ii) It does not scum with headwater (it lathers easily with hard water) √1