

LANJET F4 JOINT EXAMINATION – 2020
Kenya Certificate of Secondary Education
233/3 CHEMISTRY
PAPER 3
DECEMBER, 2020
PAPER 1 MARKING

a) Table 1

Complete Table CT ✓
Trends Td ✓
Decimal (D) ✓

Decimal- consistence in use of decimal on temperature readings 0.0,0, 0.5
Trends – constant, steady rise, constant then drop.
Complete table – if a candidate has filled the table a ward full mark.

ii Labelling and axis LA. ✓½

Plots (p) ✓
Scale (s) ✓½
Extrapolation (ex) ✓

iii) $T_2 - T_1 = \Delta T$ ✓

Highest temperature on extrapolated graph

b) Complete table CT ✓

Decimal D ✓

Accuracy (A) ✓ ±0.1 ✓
± 0.2 ✓½

Beyond ± 0.2 award 0mrk

Principles of averaging (P.A) ✓

Values averaged must be within ± 0.2 of each.

Find answer F.A ✓

b (ii) $\frac{\text{Molarities} \times \text{titre value}}{1000}$ ✓½

1000

Correct answer ✓½

II Moles ratio 1:1 ✓½

Answer in I ✓½

III $\frac{\text{Answer in II} \times 250}{25}$ ✓½

25

Correct answer ✓ ½

IV Molarities acid x 50
1000

Correct answer ✓

V. Answer in IV – answer in III
Correct answer ✓

VI Moles ratio 1:2 ✓ ½
Answer in V/2
Correct answer ✓ ½

C $\Delta H = Mc\Delta T$
= 50 x 4.2 x ΔT . ✓
= Correct answer ✓
Answer in C
Answer in VI

NB penalize ½ for missing sign and wrong unit.

2. i) White precipitate formed ✓

$\left. \begin{array}{l} \text{Ca}^{2+} \\ \text{Ba}^{2+} \\ \text{Pb}^{2+} \end{array} \right\}$ Present. All = ✓
2 = ✓ ½
1 = 0

II NO white precipitate ✓

Pb^{2+} Absent ✓ ½

$\left. \begin{array}{l} \text{Ca}^{2+} \\ \text{Ba}^{2+} \end{array} \right\}$ Present ✓ ½

III No white precipitate ✓

$\left. \begin{array}{l} \text{SO}_4^{2-} \\ \text{SO}_3^{2-} \\ \text{CO}_3^{2-} \end{array} \right\}$ Absent 3 = ✓
2 = ✓ ½
1 = 0

IV No white precipitate.

Cl^- Absent

ignore $\left. \begin{array}{l} \text{SO}_4^{2-} \\ \text{SO}_3^{2-} \end{array} \right\}$ Absent



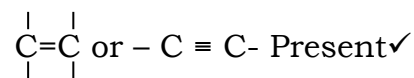
ii) Shining aluminum foil dissolves forming grey solution ✓

NO_3^- presents

Gas produce turn red litimus paper blue

Blue litmus remain blue ✓

3. a) Burns with yellow sooty/ smoky flame ✓



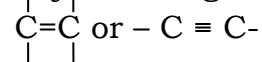
b) Solid dissolves on colorless solution ✓^{1/2}

Polar compound ✓^{1/2}
Polar organic substance.
strong acidic solution ✓

i) PH_3 ✓

Reject strong acid.

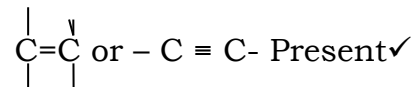
ii) Purple potassium manganate vii turns colorless. ✓

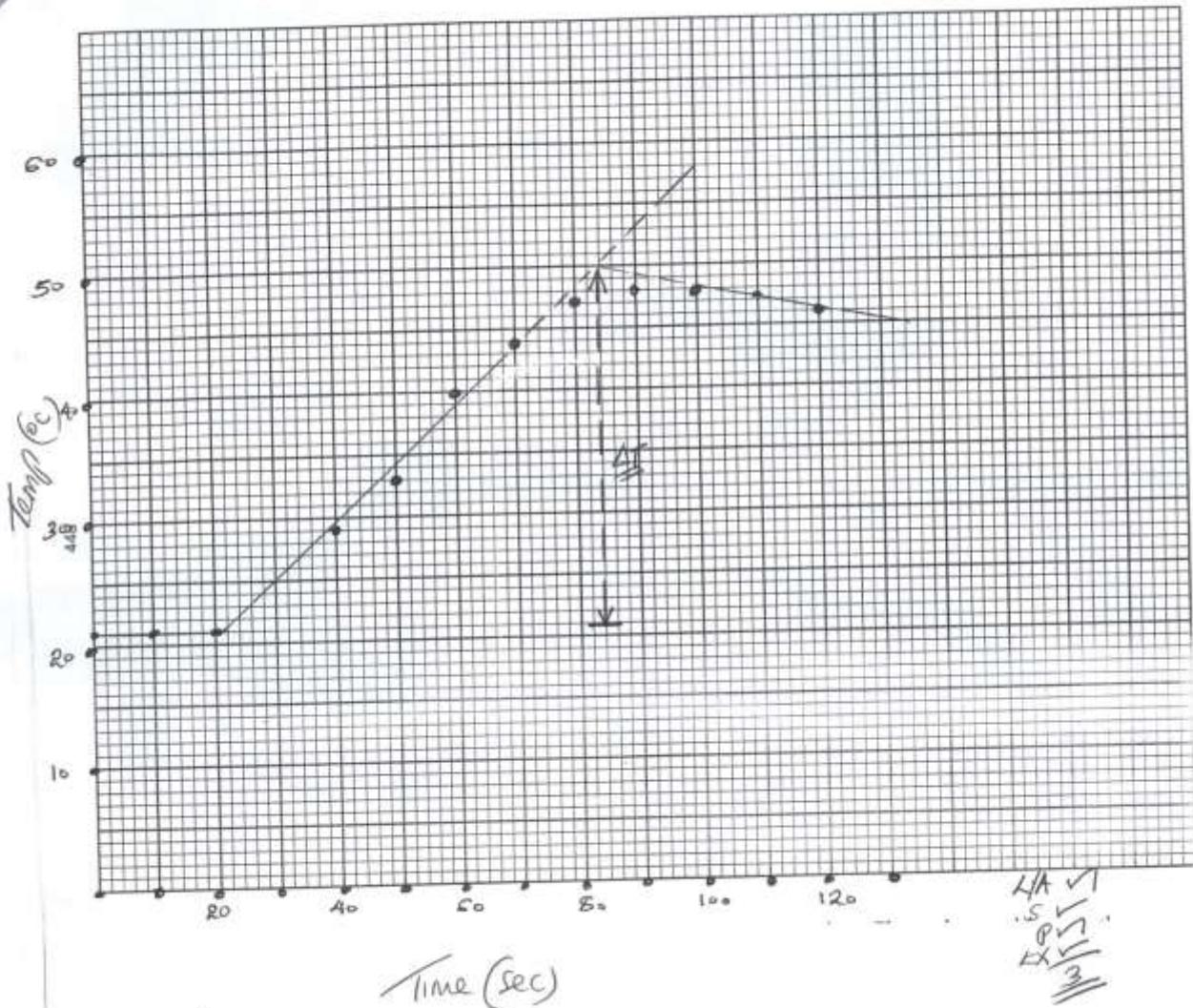


Reject solution turn colorless

R- OH ✓^{1/2} Present

iii) Orange bromine water turn colorless





Time (sec)	0	10	20	30	40	50	60	70	80	90	100	110	120	130
Temp (°C)	21.0	21.0	21.0	X	29.0	33.0	40.0	44.0	47.0	48.0	48.0	47.5	46.0	45.5

CTV ✓
F ✓
D ✓
3

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