BURAMU II JOINT EXAM – SEPTEMBER 2021
CHEMISTRY (PRACTICAL)
MARKING SCHEME

1. **Table 1** **5mk**
C.T=3mks
Penalize for unrealistic values for crystalisation temperature
First column = **2mk**; $^1/_2$mk per working max. 2 mk
Second column=1mk
D.P -$^1/_2$ mk no dp;or l dp and must be 5or 0
AC – **1mk** tied to the first reading +1— 2°C
TR- $^1/_2$ mk gradually and steady increase in solubility

(b) **GRAPH ✓(3mrks)**
Scale – $^1/_2$:graph must occupy more than 50% of the grid space
Label – $^1/_2$: both axes must be labeled for quantity; units not a must but if given must be correct otherwise penalize
Plotting - 1: 5 accurately plotted, 1 mk; 4 accurately plotted '/2 mk -
Curve - 1 at least $^1/_2$ of plotted points (3 in this case) **MUST** be on the curve. Free hand if a curve.

(c) For a solubility value asked the student is to use the graph to determine, a $^1/_2$mk is awarded for drawn lines on the graph indicating the value was obtained from the graph, the other $^1/_2$ mk awarded for correct record of such a reading/working.
(d) answer in c(ii)- answer in c (i)

Table II
CT – **1mk** penalize for unrealistic values
D.P – **1mk** ldp, or 2dp where the must be a 0 or 5, consistently used.
AC - **Imk** against SV; +/- 0.1 1MK; +/- 0.2 = ✓$^1/_2$ mk
P.A -**1mk** Values averaged must be within +/- 0.2 of one another (consistent) and have to be shown.
F.A -**1mk** as in AC above in
(5mrks)

CALCULATIONS
b) $\frac{25\times0.2}{1000}$ ✓$1/2$=0.005✓$^1/_2$
c) 2 × ans in (c) ✓$^1/_2$ =answer✓$^1/_2$
d) $\frac{250\times ans\ in(c)}{ans\ in\ (a)}$ $1/2$= answer$^1/_2$
e) molarity= $\frac{1000\times ans\ (c)}{ans\ (a)}$$^1/_2$
or molarity=$\frac{1000\times ans(d)}{250}$
Formula mass=$\frac{20}{molarity}$$^1/_2$
X=$\frac{formula\ mass-102}{12}$$^1/_2$
Anser$^1/_2$

2.

a)

Observation	Inference
White residue✓$^1/_2$ Colourless filtrate✓$^1/_2$	Sparingly soluble//solid is a mixture of soluble and insoluble salt. ✓$^1/_2$ Fe^{2+},Cu^{2+},Fe^{3+}absent(tied to colourless filtrate) ✓$^1/_2$

i)

White ppt; ✓$^1/_2$ soluble in excess✓$^1/_2$	Zn^{2+} Al^{3+} Pb^{2+} present✓1

ii)

White ppt; ✓$^1/_2$soluble in excess✓$^1/_2$	Zn^{2+} present✓$^1/_2$

iii)

White ppt; ✓$^1/_2$ soluble on warming✓$^1/_2$	Cl^- present✓$^1/_2$

b)

Effervescence//fizzing/bubbles occurs✓$^1/_2$	CO_3^{2-}✓$^1/_2$, SO_3^{2-} ✓$^1/_2$ present

i)

White ppt; ✓$^1/_2$ soluble in excess✓$^1/_2$	Zn^{2+} Al^{3+} Pb^{2+} present✓1

ii)

White ppt; ✓$^1/_2$ insoluble in excess✓$^1/_2$	Al^{3+} ✓$^1/_2$ Pb^{2+} ✓$^1/_2$ present

iii)

Yellow ppt formed✓$^1/_2$	Pb^{2+} present✓$^1/_2$

3. a)

Burns with a blue flame✓1	**`¸ C =C`´ // - C ≡ C –** absent✓$^1/_2$

b)

Miscible ✓$^1/_2$to form a **uniform colourless solution**✓$^1/_2$	Polar organic compound✓$^1/_2$

c)

Yellow bromine water remains yellow✓1	**`¸ C =C`´ // - C ≡ C –** absent✓$^1/_2$

d)

No effervescence/fizzing/bubbles✓$^1/_2$	R-COOH✓$^1/_2$ Absent Ignore H^+ //H_3O^+