

(Flame tests and tests for metal cations (Na^+ , K^+ , Ca^{2+} , Cu^{2+} , etc.))

Q1.(2018)

yellow

Q2.(2018)

copper (ion)

Q3.(2018)

(flame) colours are masked

Q4.a)(2019)

lithium:

- crush tablets or dissolve tablet (in water or acid)
- clean wire
- place on wire
- place in (roaring / blue / non-luminous) flame
- observe flame colour
- crimson flame

carbonate:

- add hydrochloric acid
- effervescence / fizzing
- bubble gas through limewater
- limewater becomes cloudy

Q4.b)(2019)

formulation(s)

Q4.c)(2019)

$$1.20 \text{ g} = 1200 \text{ mg}$$

or

$$700 \text{ mg} = 0.700 \text{ g}$$

$$\frac{700}{1200} \times 100 \text{ or } \frac{0.700}{1.20} \times 100$$

$$= 58.3 \%$$

Q5.a)(2020)

green

Q5.b)(2020)

did not clean the metal wire
(between tests)

or

copper sulfate (solution) is still
present

(so) colours are mixed / blended
/ masked

Q5.c)(2020)

(copper sulfate solution)
blue precipitate

(calcium iodide solution)
white precipitate

Q5.d)(2020)

barium chloride (solution)

Q5.e)(2020)

silver nitrate (solution)

yellow precipitate

Q6.(2021)

flame emission spectroscopy

flame test

Q7.(2021)

white

Q8.(2022)

yellow

Q9.a)(2023)

(potassium ions)

- **place sample on (clean metal) wire**
- **introduce into (blue / non-luminous) flame**
- using (Bunsen) burner
- **observe lilac flame colour**
- which shows presence of potassium (ions)

(bromide ions)

- **dissolve sample**
- in (distilled) water
- in test tube
- add (dilute) nitric acid
- **add silver nitrate (solution)**
- using (dropping) pipette
- **observe cream precipitate (formed after addition of silver nitrate solution)**
- which shows presence of bromide (ions)

Q9.b)(2023)

flame emission spectroscopy

Q9.c)(2023)

any **one** from:

- (more) accurate
- (more) sensitive
- fast(er)
- determine the concentration of ions present

Q10.a)(2024)

(test)

flame test

(result)

yellow (flame)

OR

(test)

flame emission spectroscopy (1)

(result)

lines match sodium spectrum (1)

Q10.b)(2024)

(test)

(add acidified) silver nitrate
(solution)

(result)

white precipitate

Q10.c)(2024)

to ensure that all the water has
evaporated

Q10.d)(2024)

mass of evaporating dish and
dry contents – mass of empty
evaporating dish