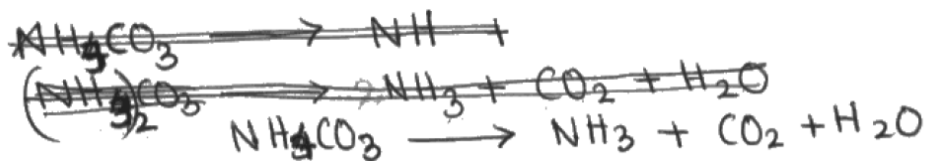


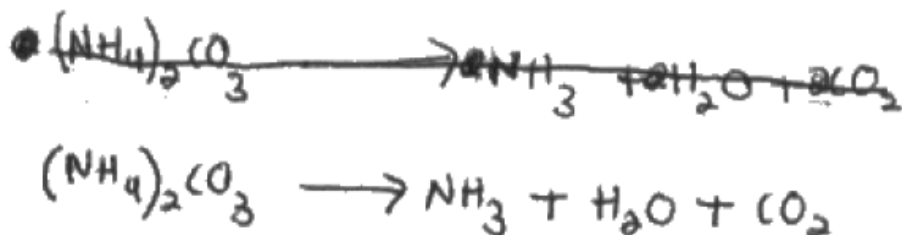
ACTIVITY 9b – AO3 in Exams – Student Answers

UNIT 3, Q1(a)

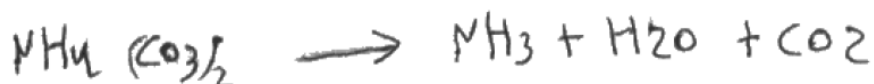
Student 1



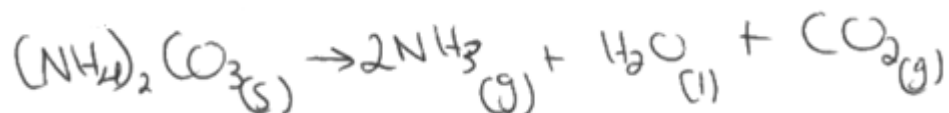
Student 2



Student 3



Student 4



UNIT 3, Q1(b)

Student 1

| Product | Chemical test | Result of test |
|----------------|--|--|
| ammonia | place tube of ammonia close to an open bottle of conc. HCl | white fumes are produced (NH_4Cl) |
| water | Add to calcium chloride | turns from white to Blue. |
| carbon dioxide | PASS through lime water ($\text{Ca}(\text{OH})_2$) | Turns milky (white ppt - (CaCO_3)) |

Student 2

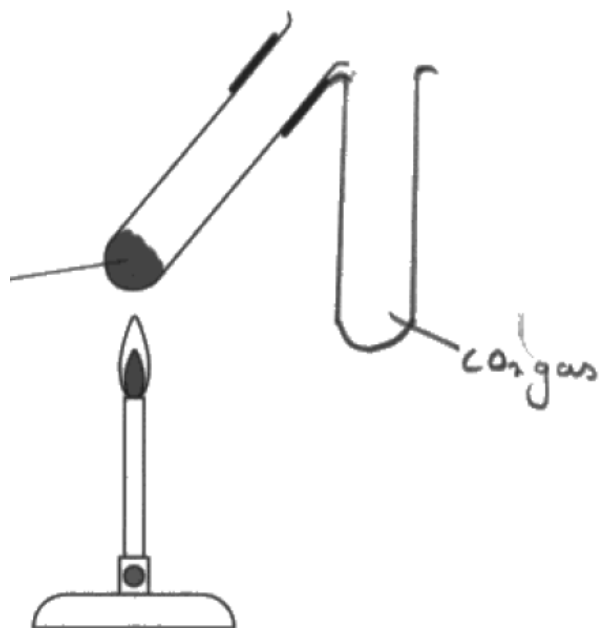
| Product | Chemical test | Result of test |
|----------------|---|---|
| ammonia | Damp litmus paper | turns red litmus paper blue |
| water | limewater put thermometer and boil it | turns it cloudy or milky boils at 100°C |
| carbon dioxide | lime water put CO_2 into lime water | turns it cloudy or milky |

Student 3

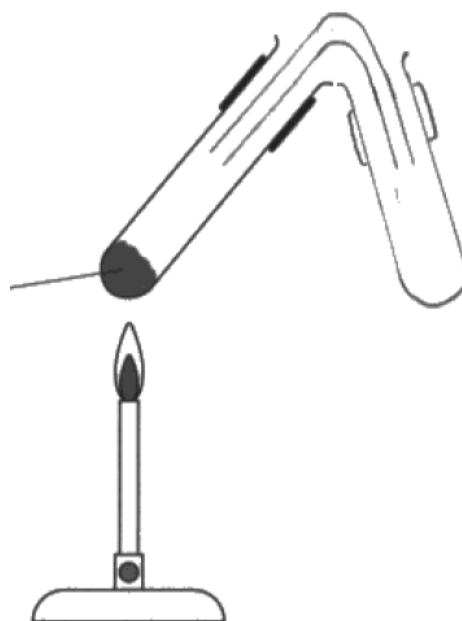
| Product | Chemical test | Result of test |
|----------------|--|-----------------------------------|
| ammonia | add excess sodium hydroxide HCl | white precipitate forms |
| water | add anhydrous copper(II) sulphate | colour changes from white to blue |
| carbon dioxide | add lime water | turns milky |

UNIT 3, Q1(c)

Student 1



Student 2



UNIT 3, Q1(d)(i) & (ii)

Student 1

| | Test | Observation | Observed product | |
|------|---|-------------|-------------------|-----|
| (i) | About 1 cm ³ of barium chloride solution was added to 5 cm ³ of the ammonium carbonate solution | Insoluble | BaCO ₃ | (2) |
| (ii) | About 5 cm ³ of hydrochloric acid was added to the mixture from (i) | Fizzing | CO ₂ | (2) |

Student 2

| | Test | Observation | Observed product | |
|------|---|-------------------------------|--|-----|
| (i) | About 1 cm ³ of barium chloride solution was added to 5 cm ³ of the ammonium carbonate solution | A white precipitate ppt forms | Barium carbonate Hydret Ammonium chloride | (2) |
| (ii) | About 5 cm ³ of hydrochloric acid was added to the mixture from (i) | precipitate dissolves | formation of Barium chloride | (2) |

Student 3

| | Test | Observation | Observed product | |
|------|---|---|---|-----|
| (i) | About 1 cm ³ of barium chloride solution was added to 5 cm ³ of the ammonium carbonate solution | vigorous effervescence and white precipitate. | Barium carbonate Hydrochloric acid | (2) |
| (ii) | About 5 cm ³ of hydrochloric acid was added to the mixture from (i) | effervescence is produced. | a gas that turns lime water cloudy, effervescence (CO ₂) | (2) |

Student 4

| | Test | Observation | Observed product | |
|------|---|--|---|-----|
| (i) | About 1 cm ³ of barium chloride solution was added to 5 cm ³ of the ammonium carbonate solution | A white precipitate forms | Barium carbonate, BaCO ₃ | (2) |
| (ii) | About 5 cm ³ of hydrochloric acid was added to the mixture from (i) | The precipitate dissolves, effervescence | BaCl ₂ and CO ₂ forms H₂O forms. | (2) |