Name:	Target Grade:	Actual Grade:

BRIGHT CULTURE

AMMONIA
MCQ and STRUCTURED QUESTIONS

READ THESE INSTRUCTIONS FIRST

INSTRUCTIONS TO CANDIDATES

1. Find a quiet, comfortable spot free place from distractions.

2. Spend one minute on each mark.

3. Time yourself for every single question.

4. Every chapter has their own question types. Ensure that you know the different question type for each chapter.

5. Make a conscientious effort to remember your mistakes, especially in terms of answering techniques. E.g Take a picture for the mistakes that you made, keep it in a photo album, and revise it over and over again.

6. Highlight question types that you tend to keep making mistakes and review them nearing exams.

7. Always review the common questions and question type that you tend to make mistakes nearing exams.

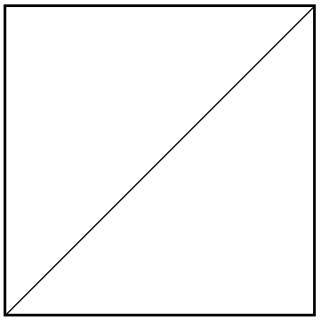
8. During exams, classify the question type and recall what you have learnt, how you need to analyse the questions for the different question type, what you need to take note of and answer with the correct answering techniques!

✨ **Wishing you all the best for this test!**

You've got this!

💡 **With lots of love,**
Bright Culture 💛

MARKS



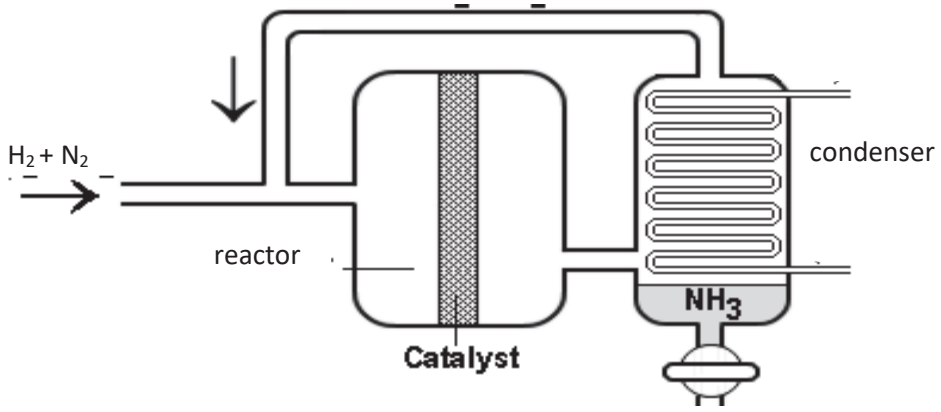
If you are struggling in this paper, means you need to work harder!

If you need any professional guidance and further advice on how to advance, feel free to WhatsApp us at 91870820 or find us at www.bright-culture.com/. We are committed to connect you to your future to reach your goals.

AMMONIA MCQ

Paper 1

1 Ammonia is produced by Haber process as shown in the diagram.



Which one of the following processes separates ammonia from the reaction mixture?

A cooling the gaseous mixture
B distillation of the gaseous mixture
C filtering out the other two gases
D passing the gaseous mixture through fused calcium oxide

2 Which statement correctly describes how the ammonia that is produced in the Haber Process is separated from the reaction mixture?

A By cooling the mixture.
B By dissolving the other two gases.
C By filtering out the other two gases by passing through cotton wool.
D By passing the gaseous mixture through fused calcium chloride.

3 Which statement about the three processes – respiration, combustion and rusting, is correct?

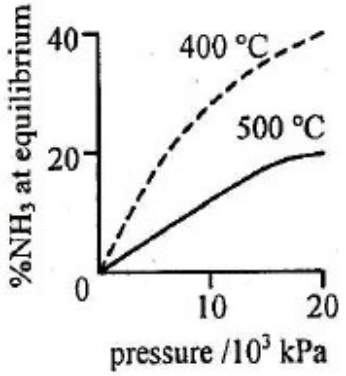
A Nitrogen must be present for the processes to occur.
B The mass of reactants is greater than that of the products.
C The processes cause a decrease in the oxygen content of the atmosphere.
D The processes cause an increase in the carbon dioxide content of the atmosphere.

4 Ammonia is manufactured by the Haber Process. Which statement is correct?

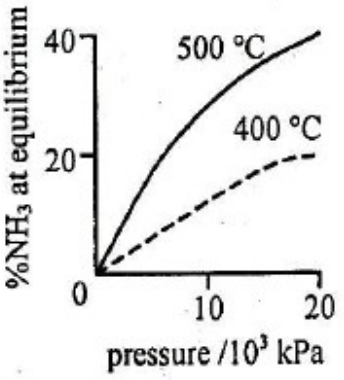
A At the optimum conditions, the yield of ammonia is 100 %.
B Hydrogen is the reducing agent.
C Increasing the temperature lowers the activation energy.
D Nitrogen is oxidised by hydrogen.

5 The percentage of ammonia obtained at equilibrium in the Haber Process is plotted against pressure for two temperatures, 400 °C and 500 °C.

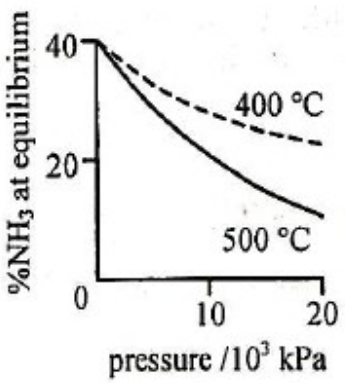
Which of the following correctly represents the two graphs obtained?



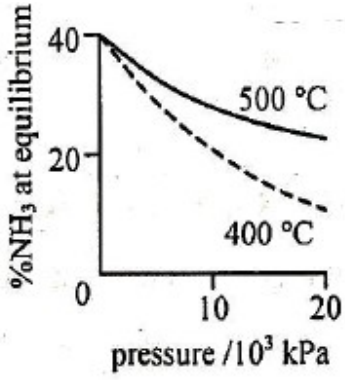
A



B



C



D

AMMONIA STRUCTURED QUESTIONS

Paper 2 Section A

1 The following compounds are used in manufacturing chemicals for agriculture.

A K_3PO_4

B H_2SO_4

C NH_3

D $Ca(OH)_2$

E NH_4NO_3

Use the letters **A**, **B**, **C**, **D** and **E** to answer the following questions.

(a) Which solid compound is added to increase the pH of soil?

……[1]

(b) Two raw materials are used to make a compound.

- One of the raw materials is made by cracking petroleum.
- The other raw material is obtained by fractional distillation of air.

Which compound is manufactured from these two raw materials?

……[1]

(c) Which **two** compounds can be reacted together to form an ammonium salt?

……and…… [1]

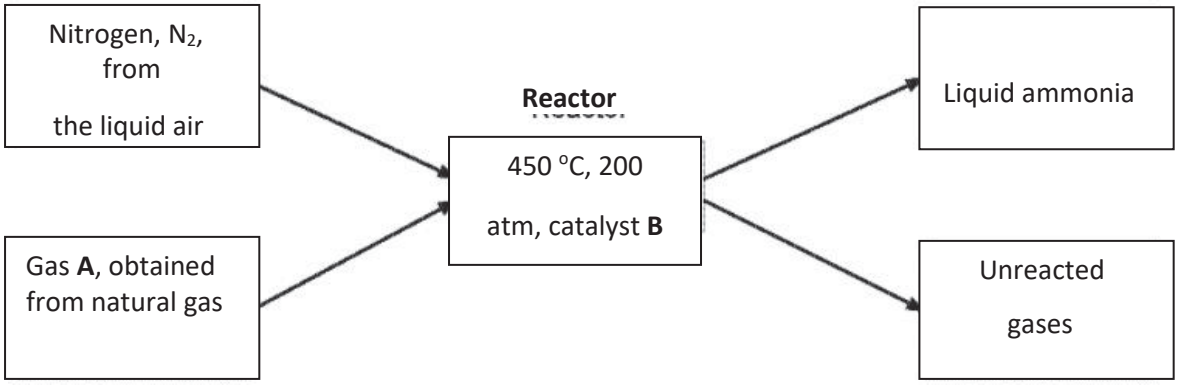
(d) NPK fertilisers are solid fertilisers that contain compounds of nitrogen, phosphorus and potassium.

Which **two** compounds could be mixed to produce an NPK fertiliser?

……and……[1]

[Total: 4]

2 Ammonia is produced during the Haber process. The reaction is summarised in the diagram below.



(a) Give the name of gas **A**

……... [1]

(b) Name the catalyst **B** and explain why it is used [2]

……..

……..

(c) The yield of ammonia is only 28% therefore 72% of the gases remain unreacted. [2]

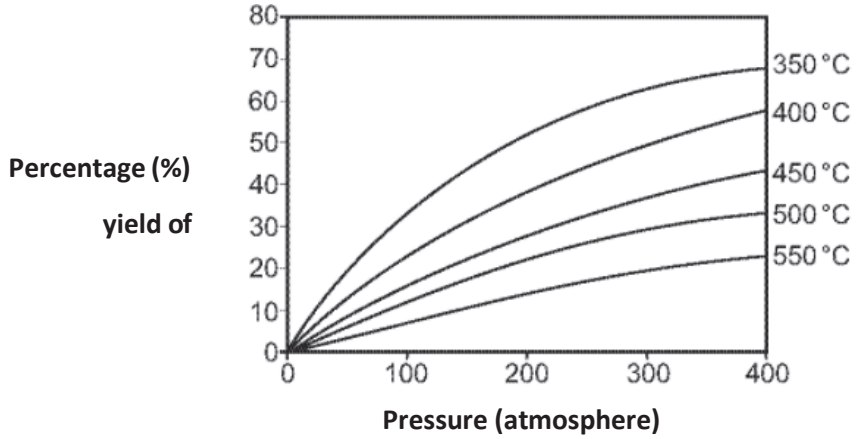
Describe what happens to these unreacted gases and explain why this is important.

……..

……..

……..

(d) The following graph below shows the effect of temperature and pressure on the yield of ammonia during the Haber process.



Describe how the yield of ammonia varies with temperature and pressure. [1]

……..

……..

(e) **(i)** Construct an equation for the production of ammonia in a Haber process. State symbols are required.

……

(ii) Explain if the above process is a redox reaction. Use oxidation number in your explanation. [2]

……

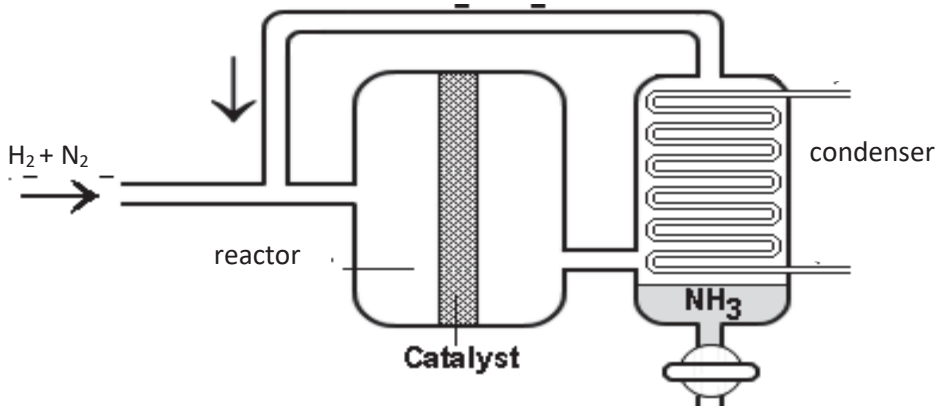
……

[Total: 10]

ANSWERS FOR AMMONIA MCQ

Paper 1

1 Ammonia is produced by Haber process as shown in the diagram.



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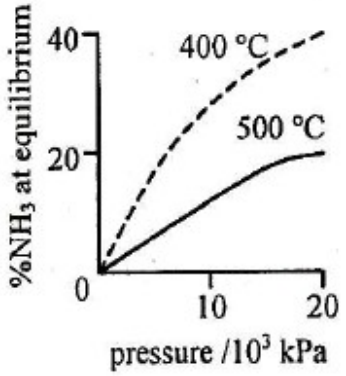
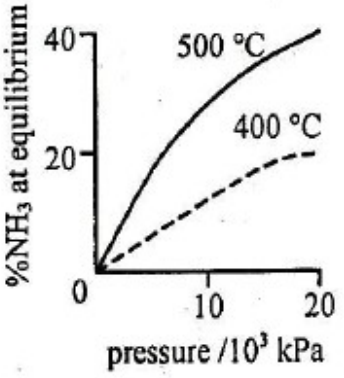


A



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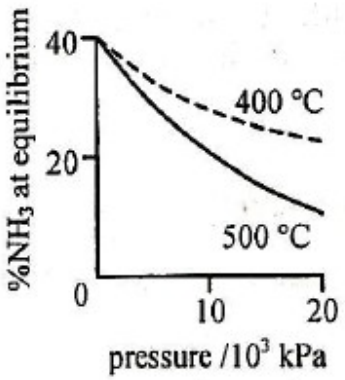

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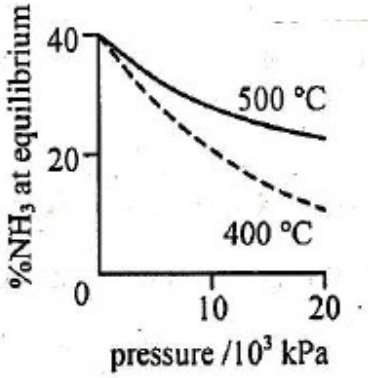

D

ANSWERS FOR AMMONIA STRUCTURED QUESTIONS

Paper 2 Section A

1 The following compounds are used in manufacturing chemicals for agriculture.

A K_3PO_4

B H_2SO_4

C NH_3

D $Ca(OH)_2$

E NH_4NO_3

Use the letters **A**, **B**, **C**, **D** and **E** to answer the following questions.

(a) Which solid compound is added to increase the pH of soil?

D [1]

(b) Two raw materials are used to make a compound.

- One of the raw materials is made by cracking petroleum.
- The other raw material is obtained by fractional distillation of air.

Which compound is manufactured from these two raw materials?

C [1]

(c) Which **two** compounds can be reacted together to form an ammonium salt?

B and C [1]

(d) NPK fertilisers are solid fertilisers that contain compounds of nitrogen, phosphorus and potassium.

Which **two** compounds could be mixed to produce an NPK fertiliser?

A and E [1]

[Total: 4]

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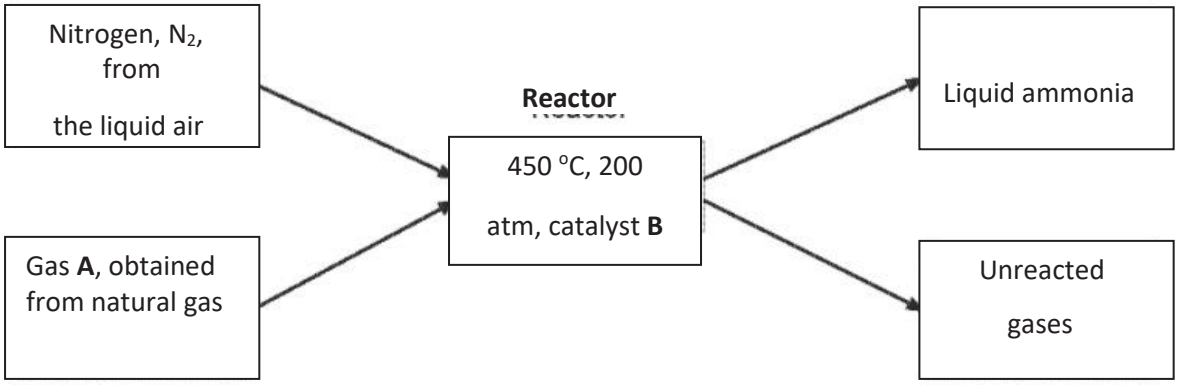


(a) Give the name of gas **A**

Hydrogen [1]

(b) Name the catalyst **B** and explain why it is used [2]

Finely divided Iron. [1]

It speeds up the reaction / increase the rate of reaction. [1]

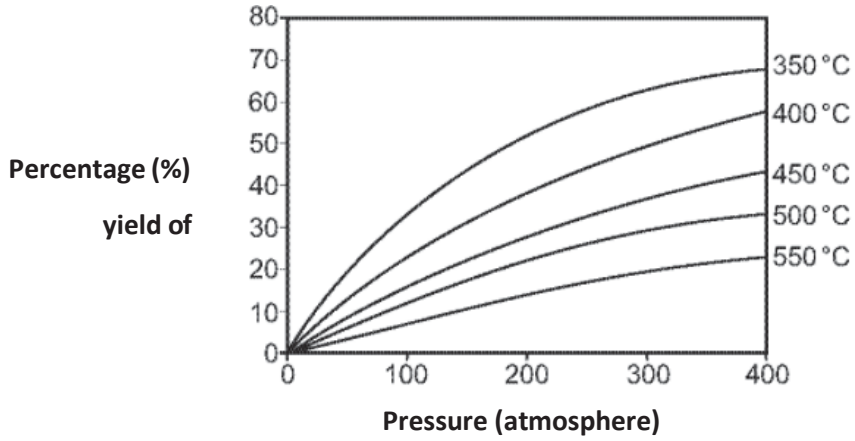
(c) The yield of ammonia is only 28% therefore 72% of the gases remain unreacted. [2]

Describe what happens to these unreacted gases and explain why this is important.

It will be fed back into the reactor / recycled / returned to the reaction. [1]

It helps to reduce the cost of the process / less waste of raw materials used. [1]

(d) The following graph below shows the effect of temperature and pressure on the yield of ammonia during the Haber process.



Describe how the yield of ammonia varies with temperature and pressure. [1]

A hig er temperature will give a lower yield [1]
A higher pressure will give a higher yield [1]

(e) **(i)** Construct an equation for the production of ammonia in a Haber process. State symbols are required.

$N_2(g) + 3H_2(g) \quad 2NH_3(g)$

(ii) Explain if the above process is a redox reaction. Use oxidation number in your explanation. [2]

It is a redox reaction.
The oxidation number of N decreases from 0 in N2 to -3 in NH3. Hence nitrogen gas has been reduced. [1]

The oxidation number of H increases from 0 in H2 to +1 in NH3. Hence hydrogen gas has been oxidised. [1]

[Total: 10]