



Option: Industrial Chemistry
Chemistry Past Exam Questions
Higher Level

2013

Section B - Question 4 K - A

(k) Answer part A *or* part B.

- A Write a balanced equation for the formation of calcium silicate (a component of slag) from calcium oxide in steelmaking.

Section B - Question 4 K - A

B

Answer the following questions with respect to the chemical industry.

- (i) Distinguish between the terms *feedstock* and *raw materials* in the chemical industry. (6)
- (ii) Explain whether labour costs are a fixed cost *or* a variable cost. (6)
- (iii) Why are glass and steel widely used as the materials for the reaction vessels in the chemical industry? (3)
- (iv) Give one advantage of a batch process and one advantage of a continuous process. (6)

Select one of the following Irish manufacturing industries:

ammonia manufacture
Cobh (now closed)

nitric acid manufacture
Arklow (now closed)

periclase manufacture
Drogheda

Give a reason why the process you chose was located at the site mentioned. (4)

2010

Section B - Question 4 K - A

B

Oxygen is produced on an industrial scale by the liquefaction and fractional distillation of air.

- (i) What substances are removed in the purification of the air feedstock before it is liquefied? (4)
- (ii) Describe with the aid of a labelled diagram how the fractional distillation of the pure liquid air is carried out. (9)
- (iii) Explain whether the fractional distillation of air is a continuous or a batch process. (6)
- (iv) Name and give one industrial use of a co-product of the fractional distillation of air. (6)

2006

Section B - Question 4 K - A

A

Select **one** of the manufacturing processes below and answer the questions which follow:

ammonia manufacture

nitric acid manufacture

magnesium oxide manufacture

- (i) What are the raw materials for the manufacturing process you have chosen? Describe how the raw materials are treated before they become the feedstock for the manufacturing process. (12)
- (ii) Name **one** product of the process you have chosen, which, if discharged, could cause pollution. (3)
- (iii) State the most important use of the *main* product of the process you have chosen. What makes this product particularly suitable for this use? (10)