



RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES

B.Sc. Third year Semester I Examination – July / August 2023
CHE 3201 –Industrial Inorganic Materials

Answer any four questions.

Time: Two (02) hours.

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1.
 - a) Write short notes on different types of commercial glass. (20 marks)
 - b) Giving examples and explain the use of the terms modifiers and stabilizers in glass industry. What specific roles do they play in a glass mixture? (30 marks)
 - c) Discuss the six different types of forming processes used in the manufacturing of glass. (30 marks)
 - d) Write the chemical formula of rutile and ilmenite. Give the flow charts of chloride and sulphate processes. (20 marks)

 2.
 - (a) Write down the main raw materials used in ceramic industry and explain the function of each raw material in a ceramic body. (30 marks)
 - (b) Give the steps involving in Ceramic industry. Give two advantages of using a glaze on a ceramic article. (30 marks)
 - (c) What do you understand the term glass ceramics and give their two advantages. (20 marks)
 - (d) Discuss the function of a ball mill in ceramic industry and identify the pollutants produced in ceramic industry. (20 marks)

 3.
 - (a) Name the raw materials used in the production of Portland cement

and name two materials in each type.

(20 marks)

- (b) Draw the flow charts of main two processes in manufacture of Portland cement, and discuss the advantages and disadvantages of two processes. .

(30 marks)

- (c) Briefly explain the rotary kiln used in the production of Portland cement and list the reactions taking place during burning of raw materials in the kiln.

(25 marks)

- (d) Briefly describe the use of gypsum in the production of cement. Explain the hardening and setting of Portland Cement.

(25 marks)

4. a) Write short notes on the following minerals available in Sri Lanka.

- i. Lime
- ii. Apatite

(30 marks)

- b) Briefly explain the following optical properties of gemstones:

- i. Luster.
- ii. Idiochromatic and allochromatic gems. Give two examples of each type of gemstone.

(40 marks)

- c) Briefly discuss the following:

- i. Structure of the graphite.
- ii. Synthetic graphite.

(30 marks)

- 5 a) Write short notes on fertilizers, along with their advantages and disadvantages.

(30 marks)

- b) Give the flow charts for the production of ammonia and urea. List the steps to find the percentage of nitrogen present in the nitrogenous fertilizer.

(40 marks)

- c) Discuss the use of organic fertilizer and inorganic fertilizer. Account their advantages and disadvantages.

(30 marks)

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