



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## University Examinations 2024/2025

FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE IN CEMENT AND CONCRETE

### SCT 7122: CONCRETE REPAIR AND REHABILITATION

DATE: JANUARY 2025

TIME: 3 HOURS

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INSTRUCTIONS: Answer question *one* and any other *Three* questions

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#### QUESTION ONE (20 MARKS)

- a. Highlight four classifications of concrete removal methods in executing repairs. (4 marks)
- b. Briefly discuss six laboratory investigations done on physical analysis of concrete before identifying appropriate repair or rehabilitation method. (6 marks)
- c. Explain petrographic concrete examination as a form of determining distress. (6 marks)
- d. Discuss four factors that influence the selection of the concrete investigation method. (4 marks)

#### QUESTION TWO (20 MARKS)

- a. Discuss the possible reasons why we should inspect concrete structures. (6 marks)
  - b. Discuss the common causes of deterioration of concrete. (6 marks)
  - c. Discuss three classifications of concrete repair methods. (3marks)
  - d. Discuss five factors affecting deploying rebound hammers a non-destructive test for concrete. (5 marks)
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**QUESTIONS THREE (20 MARKS)**

- a. Discuss any five distresses used to identify concrete deterioration and damage. (10 marks)
- b. Discuss factors considered when selecting concrete repair and retrofitting materials. (10 marks)

**QUESTION FOUR (20 Marks)**

- a. Highlight any four surface treatments aimed at increasing concrete durability as a form of safeguarding against chemical attack and moisture ingress. (4 marks)
- b. Discuss any eight general conditions required for applying repair and retrofitting materials. (16 marks)