



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**SCHOOL OF ENGINEERING AND TECHNOLOGY**  
**UNIVERSITY EXAMINATIONS FOR THE DEGREE IN CONSTRUCTION MANAGENT**  
**4<sup>TH</sup> YEAR 1<sup>ST</sup> SEMESTER 2017/2018 ACADEMIC YEAR**  
**CENTRE: MAIN CAMPUS**

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**COURSE CODE: TCM 3413**

**COURSE TITLE: MAINTENANCE AND REHABILITATION**

**EXAM VENUE: CR**

**STREAM: BSc CONSTRUCTION MGT.**

**DATE: 18/12/2017**

**EXAM SESSION: 2.00 – 4.00PM**

**DURATION: 2 HOURS**

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**Instructions**

- 1. Answer question 1 (Compulsory) and ANY other two questions**
- 2. Candidates are advised not to write on question paper**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**

QUESTION ONE (30Marks)

- a. Define the following terms (8 Marks)
- i. Maintenance
  - ii. Repair
  - iii. Rehabilitation
  - iv. Restoration
- b. Discuss atmospheric agencies as a cause which necessitate maintenance and affects durability of structure (6Marks)
- c. Maintenance can be classified into four types. State and discuss the four (6 Marks)
- d. Discuss the four types/classification of concrete repair (6Marks)
- e. Discuss any four Non Destructive test methods (4 Marks)

QUESTION TWO (20Marks)

- a. Discuss the various aspects of a structure that will be inspected in order to carry out repairs (10Marks)
- b. Define and Distinguish shotcreting and jacketing (4 Marks)
- c. List and discuss any four causes of deterioration in concrete (6Marks)

QUESTION THREE (20Marks)

- a. Discuss any SIX techniques of crack repair (12 Marks)
- b. Define the following 3Marks
- i. Dormant cracks
  - ii. Active cracks
  - iii. Growth cracks
- c. Define
- i. Cracking (1Mark)
  - ii. Spalling (1Mark)
- d. Discuss classification of cracks (3 Marks)

QUESTION FOUR (20Marks)

- a. Define estate management (2Marks)
- b. State and discuss SIX functions of Estate/property Management (18 Marks)

QUESTION FIVE (20Marks)

- a. Define the term cost-in use (2 Marks)
- b. List and discuss briefly the various categories of building related costs (14Marks)
- c. Discuss the history of estate management (4Marks)