



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF ENGINEERING AND TECHNOLOGY**

**UNIVERSITY EXAMINATION FOR THE DEGREE IN SCIENCE IN  
CONSTRUCTION MANAGEMENT**

**2<sup>ND</sup> YEAR 2<sup>ND</sup> SEMESTER 2022/2023 ACADEMIC YEAR**

**CENTRE: MAIN CAMPUS**

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**COURSE CODE: TCB 1202**

**COURSE TITLE: BUILDING TECHNOLOGY II**

**EXAM VENUE: STREAM: BSc. CONSTRUCTION MGT**

**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.**

## SECTION A

### *Question one: Compulsory*

- a. Highlight five precautions that must be taken before any underpinning work is carried out. (5marks)
- b. With the aid of a diagram, describe a needle and pile method of underpinning to a deep foundation. (5marks)
- c. Briefly explain five requirements of a good formwork that is used in concreting works (10marks)
- d. By use of a sketch, describe a slip form type of false work. (6marks)
- e. State and explain two techniques of ground water control. (4marks)

## SECTION B

### *Question Two*

- a. State four factors that a designer must take into account while designing a retaining wall. (4marks)
- b. By showing clearly the point of action, describe five types of forces that can act on cantilever retaining walls. (10 marks)
- c. State and explain three types of failures that may occur after the construction of retaining walls. (6marks)

### *Question Three*

- a. State and explain two techniques that are commonly used in controlling ground water (5marks)
- b. Outline five conditions that demand the adoption of pile foundations. (5marks)
- c. By use of a well labeled diagram, describe the following types of pile;

H-beam piles

Friction pile

End bearing pile

(10marks)

**Question Four**

- a. State and explain three types of frames used in building construction. (6marks)
- b. Sketch a base plate connection between a steel portal frame and concrete base.  
(4marks)
- c. Describe three ways of controlling moisture in basements. (6marks)
- d. By use of a diagram, show water proofing on a flat concrete roof. (4marks)

**Question Five**

- a. Briefly describe four methods that may be adopted in excavation of basements.  
(8marks)
- b. By use of a well labeled diagram, describe three classifications of basements.(12marks)