



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF ENGINEERING AND TECHNOLOGY

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

2ND YEAR 1ST SEMESTER UNIVERSITY EXAMINATIONS 2021-2022 ACADEMIC YEAR

CENTRE: MAIN CAMPUS

COURSE CODE: TCB 1211

COURSE TITLE: CIVIL ENGINEERING CONSTRUCTION I

EXAM VENUE: STREAM: BSc CONSTRUCTION MGT

DATE: /12/2021 EXAM SESSION:

DURATION: 2 HOURS

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 (30 Marks)

Question a.

Describe and name TWO types of earth moving equipment?

(8 Marks)

Question b.

The most desired shape of base plate is square and rectangular shape. Sketch typical details of column to foundation connection?

(6 Marks)

Question c

There are different types of column to beam connection which are selected based on the type of loads imposed on the column to beam joint. If the joint is subjected to vertical loads only, then simple connections are used. Name and sketch THREE?

(9 Marks)

Question d.

Different types of floor system used for steel structures include Short-span composite beams and composite slabs with metal decking. Describe this floor system?

(7 Marks)

QUESTION TWO (20 Marks)

a. Reinforced concrete has been used in a variety of applications, such as buildings, bridges, roads and pavements, dams, retaining walls, tunnels, arches, domes, shells, tanks, pipes, chimneys, cooling towers, and poles. List and describe EIGHT advantages?

(8 Marks)

b. List and briefly describe FOUR Steel frame structure construction procedures?

(4 Marks)

c. Broadly speaking, all foundations are divided into two categories: shallow foundations and deep foundations. List and describe THREE types' shallow foundations?

(6 Marks)

d. As far as beam to beam connection is concerned, end plate beam to beam connection is used to join secondary steel beams to primary steel beams. Since top flange of secondary beams support floor

system, it must be leveled with top flange of the primary beams. Describe using a sketch how this is done?

(2 Marks)

QUESTION THREE (20 Marks)

a. List three (3) advantages and THREE disadvantages of composite beams?

(6 Marks)

b. List and sketch THREE different types of column to beam connection suitable for the case where vertical loads are applied solely?

(6 Marks)

c. What is the significance of water in concrete?

(4 Marks)

d. Present-day admixtures may be classified as chemical and mineral admixtures. Mineral admixtures are inorganic materials that also have pozzolanic properties. List and briefly describe FOUR mineral admixtures?

(4 Marks)

QUESTION FOUR (20 Marks)

(a) List ONE advantage and ONE disadvantage of non-composite beams?

(4 Marks)

(b) The suitability of material for construction is assessed on the basis of its geotechnical qualities. Unsuitable material may include several materials. Name FIVE?

(5 Marks)

(c) Filling must be carried out to the lines, levels and grades required to complete the design surface. Filling or embankment construction should include several activities. Name and describe FIVE?

(5 Marks)

(d) The usual tests carried out for cement are for chemical and physical requirements. Most of these tests are conducted at a laboratory. List and briefly describe THREE?

(6 Marks)

END