



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF ENGINEERING AND TECHNOLOGY

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

2nd YEAR 2nd SEMESTER 2022 ACADEMIC YEAR

CENTRE: MAIN CAMPUS

COURSE CODE:	TCB 1206
COURSE TITLE:	CIVIL ENGINEERING CONSTRUCTION II
EXAM VENUE: STREAM:	BSc. CONSTRUCTION MGT
DATE:	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)

- a. What are the FIVE (5) requirements that an ideal pavement should meet? (5 Marks)
- b. Name and describe TWO (2) types of construction that have been used in flexible pavement? (4 Marks)
- c. Prior to the construction activity the design information has to be moved from the plan to the ground. This is accomplished by staking. Briefly using a sketch, the use of RP's (Reference Points) or slope stakes for proper excavation? (6 Marks)
- d. The method and equipment used in road construction is an important economic and design factor in road location and subsequent design. Fill the spaces applying the criteria of special limitations or advantages for the listed equipment? (5 Marks)

Criteria	Bulldozer	Front end Loader	Hydraulic excavator	Dump trucks or scrapers	Farm tractors
Special limitations or advantages					

- e. Explain the factors that may lead to destruction of highways by water and state mitigation measures? (4 Marks)
- f. The water table may rise and may come up to the pavement layers in low lying areas during rainy seasons which becomes very harmful to the pavement and the subgrade especially when the subgrade is made of fine-grained soils. Therefore, it becomes necessary to lower the water table safely below the pavement. Using sketches explain how this can be achieved? (6 Marks)

QUESTION TWO (20 Marks)

- a. Site survey usually takes place before the design process begins in order to understand the characteristics of subsoil upon which the decision on location of the project can be made. Describe the following geotechnical design criteria have to be considered during site selection? (6 Marks)
- b. **Soil stabilization** aims at improving soil strength and increasing resistance to softening by water through bonding the soil particles together, water proofing the particles or combination of the two. Soil stabilization can be accomplished by several methods. All these methods fall into two broad categories, Name and describe them? (4 Marks)
- c. When the right conditions are present in a given area, **Labour-based technology** is the most cost-effective approach to rural infrastructure development. Describe these conditions? (4 Marks).
- d. Using petty contracts for the execution of different routine maintenance activities has been shown to have the several advantages. List six (6)? (6 Marks)

QUESTION THREE (20 Marks)

- a. List SIX (6) desirable properties of Aggregates? (3 Marks)
- b. Defects can occur in the road surface or the pavement structure. Describe and sketch the location, main causes, development if neglected and remedies of the Bleeding defect? (5 Marks)
- c. The maintenance and rehabilitation of flexible pavements involves a range of activities. List and describe THREE categories? (6 Marks)
- d. A typical “drainage” system consists of several elements. Name and describe THREE of these? (6 Marks)

QUESTION FOUR (20 Marks)

- a. A railway platform is a section of pathway, alongside rail tracks at a railway station, metro station or tram stop, at which passengers may board or alight from trains or trams. List and describe THREE of them? (6 Marks)
- b. Describe Intelligent Compaction and its objective? (4 Marks).
- c. Geosynthetics are placed in pavement bases to perform one or more of the following functions describe FOUR of these functions? (4 Marks).
- d. When planning installation of a culvert, the most important thing to keep in mind is to make sure that the culvert is adequately sized and has overflow protection. Using sketches, give TWO examples of well and poorly installed culvert? (6 Marks)

END