



TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF BUILDING & CIVIL ENGINEERING
UNIVERSITY EXAMINATION FOR:
DIPLOMA IN CIVIL ENGINEERING
DCE 2210 CIVIL ENGINEERING CONSTRUCTION AND DESIGN
SPECIAL/SUPPLEMENTARY EXAMINATION
SERIES: MARCH 2025
TIME: 2 HOURS

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **five** questions. Attempt any **THREE** questions.

Do not write on the question paper.

QUESTION ONE (20 MARKS)

1. a) list Three types of foundations (3 Marks)
- b) i) State TWO causes of foundation failure
ii) define a Weir (4 Marks)
- c) state TWO classification of wells (2 marks)
- d) Describe the following processes in the construction of wells
i) Rotary
ii) Pneumatic
iii) Drilling rigs (10 marks)

QUESTION TWO (20 MARKS)

2. a) State TWO examples of the following classification of weirs:
i) According to shape

- ii) According to the nature of discharge
- iii) According to the width of crest
- iv) According to the nature of crest (6 Marks)
- b) i) define the term spillway as a water regulating structure
- ii) State TWO classifications of spillways (4 Marks)
- b) A rectangular weir of 4.5metres long has a 300mm head of water. Determine the discharge over the weir, if the coefficient of discharge is 0.6. (10 marks)

QUESTION THREE (20 MARKS)

- 3. a) the daily record of rainfall over a catchment area is 0.2million cubic metres. It has been found that 80% of the rain water reaches the storage reservoir and then passes over a rectangular weir. What should be the length of the weir, if the water is not to rise more than 400mm above the crest. Assume $C_d = 0.61$ (10 marks)
- b) An Ogee weir of 4 meters long has 500mm head of water. Find the discharge over the weir, if $C_d = 0.62$ (5 marks)
- c) With a clear sketch show the component parts of a flume (5 marks)

QUESTION FOUR (20 MARKS)

- 4. a) List THREE types of Dams (3 Marks)
- b) State the functions of a dam (5 Marks)
- c) State SIX classes and styles of flumes (6 Marks)
- d) With clear sketches define the following pressures on retaining walls
 - i) Active Pressure
 - ii) Passive Pressure
 - iii) At rest Pressure (6 Marks)

QUESTION FIVE (20 MARKS)

- 5. a) State the modes of failure of retaining walls (4 Marks)
- b) With clear sketches show the types of retaining walls (10 Marks)
- c) Define the following terms as used in tunnels
 - i) Subway
 - ii) Bridge (4 Marks)
- d) State FIVE purposes of tunneling (2 Marks)