



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF BUILDING AND CIVIL ENGINEERING
DIPLOMA IN BUILDING AND CIVIL ENGINEERING
ECV 2301: CIVIL ENGINEERING CONSTRUCTION II
END OF SEMESTER EXAMINATION

SERIES: SEPT 2017

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination

- Answer booklet
- Drawing instruments

This paper consists of **FIVE** questions

Answer any other **THREE** questions

Use neat, large and well labelled diagrams where required

Maximum marks for each part of a question are as shown

This paper consists of **THREE** printed papers.

QUESTION ONE

- a) A pavement is a structure whose primary function is to distribute the applied vehicle loads to the subgrade. Briefly explain any FIVE factors that must be taken into account when designing any pavement. **(10 marks)**
- b) State the TWO types of pavements and give FOUR points in which the two differ from one another. **(10 marks)**

QUESTION TWO

- (a) Highlight SIX ways in which concrete sleepers used in railway construction may be maintained as part of the railway maintenance operations. **(6 marks)**

(b) Using SIX items of comparison differentiate between a mono-block and two-block concrete sleepers used in railway construction. **(6 marks)**

(c) Ballast has been used intensively in railway construction, highlight EIGHT functions of ballast when packed below and around the sleepers. **(8 marks)**

QUESTION THREE

(a) .
i) Define the term “culvert “as used in the civil engineering construction. **(2marks)**

ii) Using well labeled sketches show and list the FIVE commonly used types of culverts indicating the material used to make such a culvert **(10 marks)**

(b) Differentiate between headwalls and end walls **(2 marks)**

(c) Using suitable sketches show the various types of headwalls and end walls
(6marks)

QUESTION FOUR

(a) Using well labeled sketches describe the construction of the following water front structures

i. sea walls

ii. Breakwaters

iii. Caissons

iv. Docks **(16 marks)**

(b) Highlight FOUR uses of culverts as used in civil engineering constructions **(4 marks)**

QUESTION FIVE

(a) List FIVE advantages of tunneling **(5 marks)**

(b) Using well drawn sketches, describe the THREE types of bridges commonly used in civil engineering constructions **(9 marks)**

(c) Briefly explain any THREE design factors that are considered before any tunneling operation is carried out **(6 marks)**