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: APRIL 2016

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
Briefly explain the stages (in orderly manner) followed in the construction of a rigid pavement structure of a road. **(20 marks)**

QUESTION TWO

a) Using well labeled sketches show the FIVE various types of joints which are useful on a rigid pavement citing the importance of each. **(15 marks)**

b) Highlight FIVE factors that are considered when designing a reinforced concrete culvert suitable for a class B road **(5 marks)**

Question 3

a) List any THREE surface dressing machinery used in the construction of a flexible pavement and briefly describe the importance of each **(6 marks)**

b) Using sketches Briefly describe the THREE main traditional types of breakwaters **(9 marks)**

c) Differentiate between Jetties and Dolphins **(5 marks)**

Question 4

a) Highlight EIGHT ideal requirements of a suitable railway sleepers **(4 marks)**

b) Briefly describe SIX reasons as to why steel trough sleepers are commonly used in railway construction compared to concrete sleepers **(6 marks)**

c) Define the term "sleeper Density" as used in railway construction and list SIX factors that influence the sleeper density of any railway line **(8 marks)**

d) Differentiate between a bridge and a culvert **(2 marks)**

QUESTION 5

a) Define the following terms:-
   i. Abutment
   ii. Deck
   iii. Wing walls
   iv. Piers
   v. Truss   **(10 marks)**

b) Discuss FIVE chore reasons as to why the Kenyan government should emphasize on tunneling(use of tunnels) rather than the use of roads in its ambition to achieve vision 2030   **(10 marks)**