**MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**P.O. Box 972-60200 – Meru-Kenya.**

 **Tel: 020-2069349, 061-2309217. 064-30320 Cell phone: +254 712524293, +254 789151411**

**Fax: 064-30321**

**Website:** [**www.must.ac.ke**](http://www.must.ac.ke) **Email:** **info@must.ac.ke**

**University Examinations 2015/2016**

THIRD YEAR, FIRST SEMESTER EXAMINATION FOR THE DIPLOMA IN CIVIL ENGINEERING

**ECV 2304: HIGHWAY ENGINEERING I.**

**DATE: AUGUST 2016 TIME: 11/2 HOURS**

**INSTRUCTIONS: -** *Answer question* ***one*** *and any other* ***two*** *questions*

**QUESTION ONE (30 MARKS)**

1. State four factors taken into consideration when designing a pavement. (4 marks)
2. State five advantages of rigid pavements. (5 marks)
3. State three factors which affect “breaking” i.e separation of water from bitumen. (4 marks)
4. Mention four tests carried out to determine the properties of bitumen. (4 marks)
5. List four main test groups used to ascertain the properties of aggregates. (4 marks)
6. Proper drainage design is divided into three phases. Name them. (3 marks)
7. State four important properties of aggregates used for road construction. (4 marks)
8. State three categories of compaction machines. (3 marks)

**QUESTION TWO (15 MARKS)**

Discuss in details, the three categories of construction plants and give examples in each category. (15 marks)

**QUESTION THREE (15 MARKS)**

Discuss in details the three methods in which water can be drained from roads. (15 marks)

**QUESTION FOUR (15 MARKS)**

1. With the aid of a sketch, explain the functions of each layer of a flexible pavement. (10 marks)
2. State five differences between flexible pavements and rigid pavements. (5 marks)