



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF ENGINEERING AND TECHNOLOGY

UNIVERSITY EXAMINATIONS FOR THE DIPLOMA IN BUILDING AND CIVIL ENGINEERING

3RD YEAR 1ST SEMESTER 2018/2019 ACADEMIC YEAR

CENTRE: MAIN CAMPUS

COURSE CODE: TBC 2317

COURSE TITLE: CIVIL ENGINEERING CONSTRUCTION I

EXAM VENUE: STREAM: DIP BLD & CIVEN

DATE: ../12/2018 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 (COMPLUSORY) (30 MARKS)

- a) A roads engineer should consider a number of controls and criteria in geometric design. Describe any four of these controls that determine geometric design (6 Marks)
- b) Explain the following terms as used in flexible pavement construction. (2 marks)
 - i) Improved materials
 - ii) Borrow Area
- c) Describe four aspects of pavement surface that determine safe and comfortable driving (8 marks)
- d) Describe any three properties of aggregates that are desirable for pavement construction (6 marks)
- e) With the aid of neat sketches, explain any four types of bridges. (8 marks)

QUESTION TWO (15 Marks)

- a) Explain the significance of the following road cross section elements in geometric design (6 Marks)
 - i) Guard rails
 - ii) Shoulders
 - iii) Kerbs
- b) Explain the difference between flexible and rigid pavements (6 marks)
- c) Enumerate any three requirements of an ideal pavement. (3 marks)

QUESTION THREE (15 Marks)

- a) With the aid of a sketch, describe the typical layers of a flexible pavement (4 Marks)
- b) Describe the main physical requirements of a well constructed pavement (5 Marks)
- c) With the aid of a sketch, describe the typical layers of a flexible pavement (6 Marks)

QUESTION FOUR (15 Marks)

- a) Explain the significance of proper drainage in the design life of a road. (2 marks)
- b) State five issues that should be considered in road drainage design and construction. (5 Marks)
- c) Describe any four highway surface drainage methods (8 Marks)

QUESTION FIVE (15 Marks)

- a) Explain what is meant by road slope stabilization. (3 marks)
- b) Describe, giving examples, the four main techniques of road slope stabilization (12 marks)