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**JOMO KENYATTA UNIVERSITY**

**OF**

**AGRICULTURE AND TECHNOLOGY**

# University Examinations 2012/2013

**FOURTH YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN GEOMATIC AND GEOSPATIAL ENGINEERING**

# EGE 2417: TRANSPORTATION PLANNING AND DEVELOPMENT

**DATE: AUGUST, 2012**  **TIME: 2 HOURS**

**INSTRUCTIONS:**

1. This paper contains FIVE (5) questions.
2. You are required to answer THREE (3) questions only.
3. Question ONE is compulsory.
4. Attempt any other TWO questions.
5. Question ONE carries 30 marks and the others carry 20 marks each.

**QUESTION ONE**

1. Discuss the transportation planning process (5 Marks)
2. Briefly discuss any five links between transportation and social goals

(15 Marks)

1. List eight causes of road accidents in Kenya (4 Marks)
2. There are 10,000 trips/hr generated in Kitui town as shown in Fig 1. The routes are allowed to carry a maximum of free flow loading while the rest of the trips are internally distributed within the town. 1500 and 1000 trips/hr is generated in Emeta and Kaita respectively. Out of the 12000trips/hr generated in Machakos, 6000trips/hr is internally distributed while the rest are equally distributed in the three towns. Calculate
3. The traffic assignment in routes A, B and C leading to Machakos.
4. The trips generated in Kitui, Emeta, Kaita and Machakos.
5. The trips attracted in Kitui, Emeta, Kaita and Machakos.

**(6 Marks)**

Assume

* No friction or any form of resistance
* 40min free flow, with trip loading of 4000 trips/hr from Kitui to Machakos along route B.
* 60min free flow, with trip loading of 2500 trips/hr from Kitui to Machakos along route A.
* 50min free flow, with trip loading of 3000 trips/hr from Kitui to Machakos along route C.

Kitui

Emeta

Machakos

Kaita

A

B

C

Fig 1: Route Assignment

**QUESTION TWO**

1. **Briefly discuss the three sections of transport system (6 Marks)**
2. Using relevant illustrations and examples discuss the following categories of transport system.
3. Public Transport (7 Marks)
4. Private Transport (7 Marks)

**QUESTION THREE**

1. **Discuss four components of urban dynamics in transportation. (8 Marks)**
2. **Discuss the following steps used in urban transportation planning system model**
3. **Trip generation**
4. **Trip distribution**
5. **Mode Choice**
6. **Route assignment**

**12 Marks)**

**QUESTION FOUR**

1. List eight donors and financiers of expansion and development of transport facilities in Kenya.

(4Marks)

1. **Discuss four major impacts of transport on the environment.**

**(16 Marks)**

**QUESTION FIVE**

1. Discuss the general goals and objectives of transportation planning. (8 Marks)
2. Discuss the following terms as used in the transportation planning.
3. Transport System
4. Transport Zones
5. Short path Algorithm
6. Urbanisation

(12Marks)