TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

UNIVERSITY EXAMINATION FOR:
BACHELOR OF SCIENCE IN CIVIL ENGINEERING
(BSCE Y3 S1)

ECE 2308: TRANSPORTATION PLANNING & DEVELOPMENT

END OF SEMESTER EXAMINATION
SERIES: APRIL 2014
TIME ALLOWED: 2 HOURS

Instructions to Candidates:
You should have the following for this examination
- *Answer booklet*
- *Pocket Calculator*

This paper consists of **FIVE** questions.
Answer question **ONE (COMPULSORY)** and any other **TWO** questions
All questions carry equal marks
Maximum marks for each part of a question are as shown
This paper consists of **TWO** printed pages

Question One (COMPULSORY)

a) The choice of transport mode to use is largely dependent on the quality of service offered by transport operator. In relation to this explain the quality factors that would have an effect and a commuters' choice of a mode. **(8 marks)**

b) One of the major items considered in the planning and design of transportation facilities is the human factors. Based on this describe the following human factors that affect the design of transportation facilities. **(15 marks)**
- (i) Comfort of the travel
- (ii) Perception –reaction time
- (iii) Safety

c) In relation to public transportation describe the following:
    (i)   Three properties of a good schedule
    (ii)   Three properties of a good a route set.   **(7 marks)**

Question Two

a) Transportation is one of the major contributors to environmental pollution. In relation to this briefly describe the impact of transportation on the following
    (i)   Climate
    (ii)   Natural habitats
    (iii)   Environmental pollution
    (iv)   Loss of income   **(10 marks)**

b) (i) In the context of public transportation, explain 'bundling'. Support your explation with a sketch.
                  (5 marks)
    (iii)   Explain what a 'Paratransit is and give a local example of paratransits.   **(5 marks)**

Question Three

a) Describe the following rail based transportation models:
    (i)   Light rail
    (ii)   Heavy rail
    (iii)   Commuter rail
    (iv)   Aerial tramway   **(10 marks)**

b) (i) Describe the 'modal split' modal method.   **(2 marks)**

    (ii) State the THREE main factors that influence model split.   **(3 marks)**

Question Four

a) Describe the following methods used to assign trips to various transport networks:
    (i)   All or nothing
    (ii)   Diversion curves
    (iii)   Capacity restraint
    (iv)   Incremental assignment   **(15 marks)**

b) In relation to collection of traffic data, describe the following methods:
    (i)   Post-card interviews
    (ii)   Telephone interviews
    (iii)   Home interviews   **(5 marks)**

Question Five

a) Describe the evolution of transportation.   **(10 marks)**

b) Explain the FIVE steps that are followed in a rational transport planning process.   **(10 marks)**