NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF COMMERCE, HUMAN SCIENCES AND EDUCATION

DEPARTMENT OF MARKETING AND LOGISTICS

QUALIFICATION: BACHELOR OF TRANSPORT MANAGEMENT	
QUALIFICATION CODE: 07BTRA	LEVEL: 6
COURSE: INTELLIGENT TRANSPORT SYSTEMS	COURSE CODE: ITT611S
SESSION: JULY 2022	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 100

SECOND ATTEMPT EXAMINATION	
EXAMINERS	Dr. Smart Dumba
MODERATOR:	Ms. Gloria Tshoopara

INSTRUCTIONS
1. Answer **ALL** questions from **Sections A and B**, and any **three (3) questions** from **Section C**
2. Number your answers clearly.
3. The number of marks per each question or part question is given in square brackets [ ]. These should guide you in the content of your answers.
4. This is a **Closed Book Examination.** No books or notes may be consulted during the exam.

THIS QUESTION PAPER CONSISTS OF 5 PAGES (Including this front page)

SECTION A: ANSWER ALL QUESTIONS

Question 1

a. ITS in fleet management is called telematics   [2 marks]

b. Electronic toll collection, congestion pricing and variable parking fees are all examples of Advanced Traffic Management Systems, (ATMS)   [2 marks]

c. Trip planning involves three main parts, that is pre-trip, on-trip and post trip   [2 marks]

d. Intelligent Transport Systems are applicable to the human, vehicle, and environmental parameters   [2 marks]

e. Intelligent Transport Systems architecture are consensus-based, voluntary and open   [2 marks]

f. Intelligent Transport System standards refer to the design standards for various ITS components   [2 marks]

g. Good quality pre trip information from advanced traveller information systems enables travellers achieve route optimization, fare maximisation, costs minimisation and travel time minimisation.   [2 marks]

h. Intelligent Transport Systems (ITS) in commercial vehicle operations deal with efficiency and effectiveness of the service that is being provided and can increase passenger safety, as well.   [2 marks]

i. Adaptive traffic signal control, ramp metering and traffic operations centres are specific applications for advanced traffic management systems.   [2 marks]

j. The I.T.S architecture is derived from I.T.S standards   [2 marks]

Subtotal: 20 marks

SECTION B: ANSWER ALL QUESTIONS

Question 2

Select the correct answer, each correct answer carries 2 marks

a) Which of the following is **not part** of Advanced Traffic Management Systems strategies?
   A. Congestion management
   B. Network management
   C. Pre-trip and en-route advisory management
   D. Corridor management

b) Select the **odd** one out under ITS data requirements.
   A. Data collection and collation
   B. Data fixing and manipulation
   C. Data analysis
   D. Data presentation

c) Data generated by automated passenger counters is utilized for the following, **except**
   A. Demand forecasting
   B. Crew scheduling
   C. Vehicle scheduling
   D. Load planning
   E. All these are correct

d) Select the **odd** one out.
   A. Geometrical data
   B. Signal control data
   C. Loop detector data
   D. Traffic data
   E. None of these is odd

e) Global Positioning Systems are utilized in the following areas, **except**
   A. Commercial Vehicle Operations
   B. Advanced Traffic Management Systems
   C. Advanced Vehicle Control System
   D. Advanced Traveller Information Systems
   E. None of these

f) Select the **odd** one out
   A. Advanced Traveller Information Systems, (ATIS)
   B. Vehicle to Infrastructure Integration (V2I) and Vehicle to Vehicle (V2V) Integration.
   C. ITS enabled Transportation Marginal Costing Systems, (TMSC)
   D. Advanced Traffic Management Systems, (ATMS)
   E. None of these is odd

g) Integrated Vehicle Health Monitoring Systems, (IVHMS) check the following aspects on a vehicle, **except**
   A. Vehicle upholstery
   B. Engine monitoring
   C. Gearbox
   D. Suspension loads and dynamics
   E. All these are checked

h) Variable Messaging Signs, (VMS) assist travellers with the following decisions, **except**
   A. Departure time choice
   B. Route choice
   C. Lane choice
   D. Vehicle choice
   E. All these are correct

i) The basic structure of an I.T.S constitute the following technologies, **expect**
   A. Sensing technology
   B. Positioning technology
   C. Mapping technology
   D. Telematics technology
   E. Networking technology

j) ITS seek to address the following problems, **except**
   A. Rapid urbanisation
   B. Rapid motorisation
   C. Air pollution
   D. Noise pollution
   E. Global warming
   F. All these are correct

Subtotal: 20 marks

SECTION C: ANSWER ANY THREE (3) QUESTIONS

Question 3

Analyze the benefits and challenges of implementing I.T.S in developing countries   [20 marks]

Question 4

Examine the key processes required to set up an Advanced Traffic Management System

[20 marks]

Question 5

Explain the key elements under each of the following steps in trip planning of the Advanced Travel Information Systems, (ATIS)

i.	Pre-trip	[7 marks]
ii.	On-trip	[6 marks]
iii.	Post-trip	[7 marks]

Subtotal: 20 marks

Question 6

Write short notes on the following layers of I.T.S

i.	Transportation layer	[8 marks]
ii.	Communication layer	[6 marks]
iii.	Institutional layer	[6 marks]

Subtotal: 20 marks

Question 7

Discuss the scope and goals of Incident Management Strategies (IMS)   [20 marks]

TOTAL:100 MARKS

END OF QUESTION PAPER