FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY

DEPARTMENT OF INFORMATION AND MEDIA TECHNOLOGY

FIRST SEMESTER 2017/2018 EXAMINATION

COURSE CODE:	IMT 412
COURSE TITLE:	DATA MINING II
CREDIT UNITS:	2
TIME ALLOWED:	2 hours
COURSE LECTURER(S):	I. O. ALABI
NUMBER OF QUESTIONS:	4
NUMBER OF PAGES:	3 (INCLUDING THIS PAGE)

INSTRUCTIONS

- Answer all questions
- Do not use red pen
- Please use a clear handwriting
- This exam is closed book, closed notes, closed laptop and closed cell phone
- Please use non-programmable calculators only

1. a) What does Association analysis entails? (7 marks)

   b) What are the basic metrics of an association rule? (8 marks)

2. a) What is Classification? Explain Predictive and Descriptive modelling. (10 marks)

   b) Sketch a lattice for all possible itemsets, $I=\{a,b,c,d,e\}$. (5 marks)

3. a) Discuss a Decision Tree induction. (4 marks) What are the purity metrics for the best split selection? (6 marks)

   b) What are the pitfalls to avoid in a Decision tree induction? (5 marks)

4. a) Explain the following Decision tree test conditions, use sketches as necessary:

   i) Binary attributes ii) Nominal attributes iii) Ordinal attributes
   iv) Continuous attributes v) Target attributes
   (1 mark each = 4 marks)

   b) What is a Confusion matrix? (3 marks) Use Table 2 to explain the following:

   i) True-Positive
   ii) False Positive
   iii) False Negative, and
   iv) True Negative. (2 marks each = 8 marks)

   c) What are the metrics that can be computed from the matrix? (4 marks)

Table 2: Matrix A

		Predicted	
Actual		Class 1	Class 2
	Class 1	67	15
	Class 2	20	13