



FACULTY OF SCIENCE

DEPARTMENT OF MATHEMATICS AND APPLIED MATHEMATICS

MODULE	MAT1EA1\MAT1A1E
CAMPUS	APK
ASSESSMENT	EXAMINATION (ONLINE DUE TO COVID-19)

DATE 2021/06/03

TIME 12H30—15H00

ASSESSOR(S)

**MR T CHIKORE
MR L MATSEBULA
MS M SEBOGODI
DR ROBINSON**

MODERATOR

DURATION

**SECTION A: 75 MINUTES
SECTION B: 75 MINUTES**

MARKS 75

SURNAME AND INITIALS _____

STUDENT NUMBER _____

NUMBER OF PAGES: 2 PAGES, INCLUDING COVER PAGE

- INSTRUCTIONS:**
- 1. ANSWER ALL THE QUESTIONS ON THE PAPER IN PEN.**
 - 2. NO CALCULATORS ARE ALLOWED.**
 - 3. SHOW ALL CALCULATIONS AND MOTIVATE ALL ANSWERS.**
 - 4. YOU HAVE TO COMPLETE BOTH SECTION A AND B!
YOU MUST START WITH SECTION A. SECTION B WILL
ONLY BE AVAILABLE AT 13H00.**
 - 5. THE SUBMISSION LINK ON BB WILL BE TAKEN DOWN AT 15H00.**
 - 6. DO NOT EMAIL YOUR ANSWERS TO THE LECTURERS,
THEY WILL NOT BE MARKED. YOU HAVE BEEN GIVEN TWO
ATTEMPTS TO UPLOAD SECTION B ON BLACKBOARD.**



Mathematics and Applied Mathematics

Calculus of One Variable Functions

EXAMINATION SECTION B

MAT1EA1\MAT1A1E: 2021-06-03

Time: 12H30—15H00

Marks: 15

Assessors: Mr. Chikore, Mr. Matsebula and Ms. Sebogodi

Moderator: Dr Robinson

Question 1 [3 mark(s)]

Simplify completely the trigonometric expression.

$$\frac{\cos^3 x - \sin^3 x}{\sin x - \cos x}.$$

Question 2 [4 mark(s)]

Find the inverse function and domain of f .

$$f(x) = x^2 - x, \quad x < 0.5.$$

Question 3 [8 mark(s)]

Find the values of the trigonometric functions of θ from the information given.

$$\sec \theta = 7, \quad \sin \theta < 0.$$

- | | |
|-------------------|-----|
| (a) $\sin \theta$ | (3) |
| (b) $\cos \theta$ | (1) |
| (c) $\tan \theta$ | (2) |
| (d) $\csc \theta$ | (1) |
| (e) $\cot \theta$ | (1) |