Due Date: 17 April 2013, Wednesday   NAME:..

Ali Sinan Sertöz   STUDENT NO:..

Math 504 Complex Analysis II – Take-Home Exam 05

1	2	3	4	5	TOTAL
25	25	25	25	0	100

Please do not write anything inside the above boxes!

Check that there are **4** questions on your exam booklet. Write your name on top of every page. Show your work in reasonable detail.

For each question I will post the best student solution on the web. If there are more than one interesting solutions, I will post them all. Having your solution posted on the web will get you extra 10 points for each solution posted. These will be added to your total exam grades before an average is taken at the end of the semester.

Q-1) Find the genus of the Riemann surface of the algebraic function $w^8 + z^8 - 1 = 0$.
[page 215, Exercise 4M (a)]

Solution:

Q-2) Find the genus of the Riemann surface of the algebraic function $w^2 - z^4(z-1) = 0$.
[page 215, Exercise 4M (b)]

Solution:

Q-3) Find the genus of the Riemann surface of the algebraic function $w^3 - w + z = 0$.
[page 215, Exercise 4M (c)]

Solution:

Q-4) Prove that the (real) projective plane contains a subset homeomorphic to the Mobiüs band and deduce that the projective plane is non-orientable.

[page 215, Exercise 4P]

Solution: