**Preparation for Test 4 – Past exam Questions**

**MAS 3C Sem 1 Exam 2012 (non-calc)**

**Question 6. (11 marks)**

Evaluate the following:

(a)  [1 mark]

(b)  [3 marks]

(c)  [Let ] [4 marks]

(d)   [1 mark]

(e)  [2 marks]

**MAS 3C Sem 1 Exam 2012 (calc)**

**Question 7. (8 marks)**

(a) Evaluate  [1 marks]

(b) Use algebraic techniques to show   [2 marks]

(c) Use appropriate substitution and algebraic techniques to show

 [5 marks]

**MAS 3C Sem 1 Exam 2011 (non-calc)**

6. Determine the following integrals:

b) 

8. [7 marks]b) Evaluate exactly  using the substitution  [5]

**MAS 3C Sem 1 Exam 2011 (calc)**

7. [4 marks]

The diagram below shows a sketch of two curves *f*(*x*) and *g*(*x*).

*f*(*x*)

*g*(*x*)

*a*

*b*

*c*

*d*

*e*

1. In terms of *f*(*x*), *g*(*x*), *a*, *b*, *c*, *d* and *e* write an expression that can be used to find the value of the area shade. [2]
2. Given that  and  find the value of the shaded area. [2]

MAS 3C Sem 1 Exam 2014 (non-calc)

Question 1 (7 marks)

Determine the exact area bounded by the graph of  and the -axis for .

Question 3 (11 marks)

Determine the following:

(a)  (2 marks)

b)  (5 marks)

c)  (Hint: Let ) (4 marks)

MAS 3C Sem 1 Exam 2014 (calc)

Question 14 (7 marks)

(b) The graphs of ,  and  are shown below.



(i) Determine the exact value of , , given that the shaded region has an area of 6 square units. (3 marks)

(ii) Determine the exact area between  and the -axis from  to .

(1 mark)