**KANDOTO GIRLS SCIENCE SECONDARY SCHOOL**

**TERMINAL EXAMINATIONS**

**ADVANCED MATHEMATICS 02**

**FV PCM NOVEMBER 2015**

Time: 3 hrs

**Section A (60 marks)**

Attempt all questions in this section

1. (a) Prove by mathematical induction that 

(b) Solve 

(c) Solve



(d) Find the remainder when  is divided by  (15 marks)

1. (a) Show that 

(b) Solve by t – formulae 

(c) Find the value of 

(d) Prove that  without use of a calculator. (15 marks)

1. (a) Prove that 

(b) Find the first three terms and the general term in the expansion in ascending powers of  for



(c) Find the values of  and  so that  and  shall be factors of 

What is then the third factor?

(d) Resolve into partial fractions  (15 marks)

1. (a) Prove that 

(b) If  prove that 

(c) If  find the possible ratios of  to 

(d) Find all the angles between 0˚ and 360˚ which satisfy the equation 

(e) Find the general solution of the equation  (15 marks)

**Section B (40 marks)**

Attempt only two questions in this section

1. (a) Prove that 

(b) Show that 

(c) Solve 

(d) Find the approximate value of the acute angle which satisfies the equation 

without use of a calculator.

1. (a) Prove that if  is so small that its cube and higher powers can be neglected then  Taking  show that 

(b) Solve by inverse method



(c) If  show that  (20 marks)

1. (a) Find the set of values of  for which 

(b) Simplify 

(c) Solve 

(d) For what values of 

(e) Construct a  matrix A, whose elements are given by  (20 marks)

1. (a) Prove that, for all positive integers,   is divisible by 25.

(b) Evaluate 

(c) Prove that 

(d) Decompose  into partial fractions and hence find 

(e) Given  show that  (20 marks)

***“Solving is a culture of mathematicians”***