CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS RESIT/SPECIAL EXAMINATIONS

EXAMINATION FOR THE AWARD OF DIPLOMA IN COMPUTER SCIENCE

MATH /COSC 0170: MATHEMATICS FOR COMPUTING I

STREAMS:

TIME: 2 HOURS

2.30 P.M – 4.30 P.M

DAY/DATE: TUESDAY 24/07/2018

INSTRUCTION:

ANSWER ALL QUESTIONS

QUESTION ONE

- a) In a 6- question marking test how many different answer sheets are possible if no answer sheet can be used twice and there are
 - (i) 6 answer sheets available
 - (ii) 7 answer sheets are available
 - (iii) 10 answer sheets are available 6marks]
- b) How many terms of the sequence 1, 4, 7,10... are needed to give a sum of 590 from the first term of the sequence [5marks]
- c) Find the quotient and the remainder when $x^3 4x^2 + x + 2$ is divided by $(x^2 3)$ [5marks]
- d) Prove analytically that $(A \cup B)UC = A \cup (B \cup C)$

[4marks]

QUESTION TWO

- a) A school committee of nine members is to be formed 8 parents and 6 teachers and the principal. In how many ways can the committee be formed in order to include
- i) The principal
- ii) The principal and 5 parents [10marks]
- b) Given U = [1,2,3,4,5,6,7,8,9,10]

Find i)A^c

iv) (A $\cap B$)^c

ii) B^c) $A^c \cap B^c$ iii) $A \cap B$ (v) $A^c \cap B^c$

[6marks]

c) How many ways are there to select a first prize winner, second prize winner and a third prize winner from 50 different people who have entered a content [4marks]

QUESTION THREE

- a) The second term of a GP is 2 and the fourth term is 8. Find the possible values of the common ratio and the corresponding first terms
 [6marks]
- b) Solve the following equation for $~~0\,^\circ \le \theta \le 360\,^\circ$

[6marks]

 $2 \sin^2 \theta = \sin \theta$

- c) Given that f(x) = 2x 1 and g(x) = x + 3, find
- i) ³ fog i
- ii) gof(3)
- iii) gog(x)
- iv) fof (x)
- [8 marks]

QUESTION FOUR

a) Simplify $\frac{6-3i}{4-i}$

[2marks]

b) Find the value of K such that the sequence is an AP [4marks]

- c) A family of 4 brothers and 3 sisters is to be arranged for a photograph in one row. In how many ways can they be seated if
 - i)
 - All the sisters seat together No two sisters seat together ii)
 - [4marks]
