



## The Presbyterian University of East Africa (PUEA)

**School:** Computer Science

**Program:** Degree

**Semester:** January – April, 2013

**Unit Code:** **MAT 103**

**Unit Title:** **MATHEMATICS FOR COMPUTER SCIENTISTS**

**Date:** 22<sup>nd</sup> April 2013

**Campus:** Kikuyu

### Read the instructions carefully:

- i. Mobile phones **ARE NOT** allowed in the examination room
- ii. Time allowed is **2 Hours**
- iii. Answer **ALL** your selected questions on the examination answer book provided
- iv. No bags **OR** reference material of any kind should be in the examination room
- v. Do not write on the question paper. Any rough work should be written at the back of the examination booklet and crossed through.
- vi. Only registration numbers should appear on the booklets. ***Writing a name on the booklet will lead to cancellation of the Unit.***

**INSTRUCTIONS : Answer ANY 4 questions.**

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1.) a.) Using the table represented below calculate the mean, median and standard deviation

<b>interval</b>	<b>Frequency</b>
0.5 -4.5	5
4.5 - 9.5	54
9.5 - 14.5	25
14.5 - 19.	5 9
19.5 - 24.	5 4
24.5 - 29.	5 1
29.5 - 34.	5 2

(15 marks)

2.) i.) Convert the following numbers to binary.

a.)  $7666_8$

b.)  $ACF_{16}$

c.)  $189_{10}$

(9 marks)

ii.) Add up the following numbers

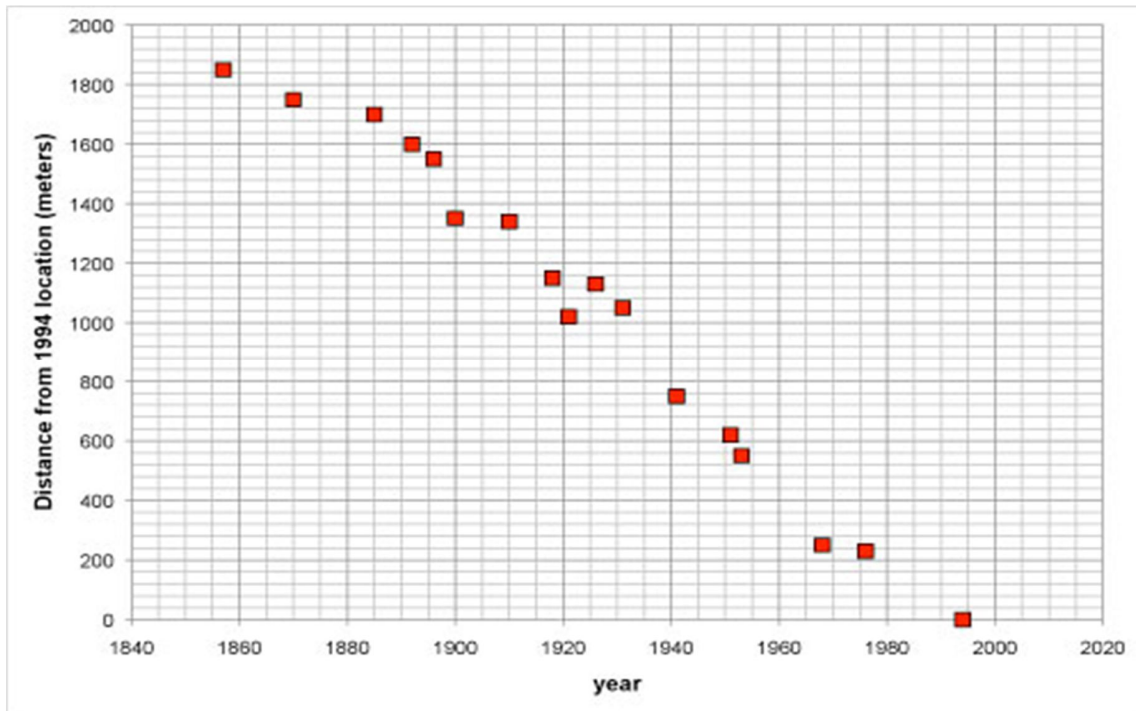
(6 marks)

$111100010_2$   
 $111100001_2$

$AD45_{16}$   
 $CAF1_{16}$

3.) a.) Using the table below draw the line of best fit.

(4 marks)



b.) Calculate the gradient of the line drawn

(4 marks)

c.) Write down the equation of the line.

(6 marks)

4.) Using the equation  $y = (x - 1)(x + 3)^2$

a.) Find the gradient equation

(2 marks)

b.) find out the point/s where the gradient is equal to zero.

(5 marks)

c.) Find out the types of the points

(8 marks)

5.) a.) Solve for x, y and z in the following matrix

(9 marks)

$$4x - y + 3z = 2$$

$$x + 5y - 2z = 3$$

$$3x + 2y + 4z = 6$$

b. Solve the following equations

(6 marks)

$$2x - 5y = 1$$

$$3x + 5y = 14$$