TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Business & Social Studies

DEPARTMENT OF MEDIA & GRAPHIC DESIGN

CERTIFICATE IN MASS COMMUNICATION

BMC 1101: INTRODUCTION TO PRINT MEDIA

SPECIAL/SUPPLEMENTARY EXAMINATION
SERIES: OCTOBER 2013
TIME: 2 HOURS

Instructions to Candidates:
This paper consists of **TWO** sections **A** & **B**

Section **A** is **COMPULSORY**
Answer any other **TWO** questions in section **B**
This paper consists of **TWO** printed pages

QUESTION FOUR

a) Using Cramer's rule, solve the following set of equations.

$$x_1 + 2x_2 + x_3 = 4$$
$$3x_1 - 4x_2 - 2x_3 = 2$$
$$5x_1 + 3x_2 + 5x_3 = -1$$

(9 marks)

b) Given $A = \begin{pmatrix} 6 & 0 & 4 \\ 1 & 5 & -3 \end{pmatrix}$ and $B = \begin{pmatrix} 2 & 9 \\ 8 & 0 \\ -4 & 7 \end{pmatrix}$ determine:

(i) 3A

$A \bullet B$

(ii)

$B \bullet A$

(iii) **(6 marks)**

c) Determine the eigenvalues and eigen vectors for the equation.

$$Ax = 7x \quad \text{where} \quad A = \begin{pmatrix} 2 & 0 & 1 \\ -1 & 4 & -1 \\ -1 & 2 & 0 \end{pmatrix}$$

(10 marks)

QUESTION FIVE

a) If $x = a(\cos\theta + \theta\sin\theta)$ and $y = a(\sin\theta - \theta\cos\theta)$ find:

$\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$

(5 marks)

b) Find the expression $\frac{dy}{dx}$ when $x^3 + y^3 + 4xy^2 = 5$ **(5 marks)**

c) Differentiate $\frac{x^4}{(x+1)^2}$ with respect to x **(5 marks)**

d) Integrate the following

$$\int \frac{x^2+1}{(x+2)^3}\,dx$$

(i)

$$\int \frac{1}{2x^2+12x+32}dx$$

(ii) **(10 marks)**

QUESTION SIX

a) The following figures relate to length of service and income of the employees of an organization.

Length of service (years) :	11	7	2	5	8	6	10
Incase (kshs '000')	7	5	3	2	6	4	8

(i) Compute the coefficient of correlation

(ii) Find firm regression equations (x on y and y on x)

(iii) Show that the coefficient of correlation can also be obtained from the gradient of the two regression equations as:

$$r = \sqrt{g_{xy} \times g_{yx}}$$

(19 marks)

b) Discuss the advantages and disadvantages of non-parametric tests **(6 marks)**