MURANG'A UNIVERSITY COLLEGE

(A Constituent College of JomoKenyatta University of Agriculture and Technology)

SCHOOL OF BUSINESS AND ECONOMICS

DEPARTMENT OF COMMERCE

MAIN CAMPUS

UNIVERSITY EXAMINATIONS
ORDINARY
2015/2016 ACADEMIC YEAR

YEAR ONE SEMESTER ONE EXAMINATIONS

DIPLOMA IN BUSINESS MANAGEMENT&CERTIFICATE IN BUSINESS MANAGEMENT (DBM&CBM)

COURSE CODE: DIB 1111&CIB 0101 COURSE TITLE: QUANTITATIVE TECHNIQUES

DATE: 22ND APRIL 2016 TIME:2 HOURS

INSTRUCTIONS TO THE CANDIDATES

THIS PAPER CONSIST OF FOUR QUESTIONS

Question one (1) is Compulsory

Answer Any Other Two (2) Questions

MRUC observes ZERO tolerance to examination irregularities

QUESTION ONE

a) Explain four functions of Quantitative Methods in any business enterprise. (5marks)

b) Discuss four areas where Quantitative Methods are used. (4marks)

c) Solve the following inequalities and show all the integral values of the solution on a number line.

i) $1/2x-2 \leq 1$ (3marks)

$-x-6>-3$

ii) $6x-1>-5$

$2x+1 \leq 7$ (3marks)

iii) $3x-2 \leq -8 < -x$ (3marks)

d) Evaluate $\lim x^2 -4 \div x^2-5x+6$ where $x \longrightarrow 2$ (4marks)

e) Calculate gradient ,x and y intercept of a line that passes through(3,9) and (3,6)(5marks)

f) Sketch the graph of the following equations.

i) $y= 2x+9$

ii) $x+3y=6$ (6marks)

QUESTION TWO

a) A survey was carried out by a local chamber of commerce. One of the aims being to discover to what extent computers were being used by the firms in the industry.
The following were the findings;
-32 firms had both stock control & payroll computers.
-65 firms had one of these two functions computerized.
-90 firms had computerized payroll.
-22 firms had neither of these two functions computerized.
Use set theory to elucidate how many firms were included in the survey. (10marks)

b) Given $f(x)= x^3-2x^2+4x+5$ find;

i. f(0)
ii. f(1)
iii. f(2)
iv. f(3)
v. f(-4) (5marks)

c) Explain the following types of matrix

i) Diagonal
ii) Square
iii) Column
iv) Identical
v) Transpose (5marks)

QUESTION THREE

a) A manufacturer has found that if he wants to increase his output he must lower his price. His total revenue (R) from output x is given by the expression R=x(296-x) while his production costs are £ 2,000 fixed and £ 72 per unit variable and the total cost C=2,000+72x

Required:

i) Find the output that would maximize revenue. (3marks)

ii) The maximum revenue (3marks)

iii) The profit P in terms of the number of units x (3marks)

iv) The output x, that would maximize profit. (3marks)

b) With reference to matrix, solve the values of the unknowns from the following problem.

(i) $2x_1+3x_2=7$

$x_1+5x_2=14$

(ii) $5x+9y= -30$

$6x+2y= 28$ (8marks)

QUESTION FOUR

a) Compute the present value of an annuity of £10,000 p.a received for 8years when the discount rate is 12%. (3marks)

b) Calculate the present value of £12,000 received in 8 years time with a discount rate of 10% (3marks)

c) How much will £8,000 amount to at 12% compound interest over 6 years? (4marks)

d) Compute the value of the 12^{th} term and the sum of first 10 terms of the A.P 4, 9, 14, 19… (4marks)

e) Compute the value of 12^{th} term and the sum of the first 15 terms of the G.P 2, 4, 8, 16... (4marks)

f) Distinguish between simple interest and compound interest. (2marks)

THE END……