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
SUPPLEMENTARY/SPECIAL
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: 30TH JUNE 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

This paper consists of 3 printed pages. Please turn over. ⟹

QUESTION ONE

a) Explain four roles 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)
$-3x-9>-6$

ii) $3x-1>-4$
$2x+1 \leq 7$ (3marks)

iii) $3x-2 \leq -4 < -2x$ (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(2,6) and (6,14) (5marks)

f) Sketch the graph of the following equations.

i) $y= -5+6$
ii) $3x+6y=12$ (6marks)

QUESTION TWO

a) Given $f(x)= x^3-3x^2+2x+10$ find;

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

b) Explain the following types of sets

i) Universal sets
ii) Sub-set
iii) Null set
iv) Compliment of a set
v) Disjoint sets (5marks)

c) 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)

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(148-x) while his production costs are £ 1,000 fixed and £ 36 per unit variable and the total cost C=1,000+36x
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) Solve the values of the unknowns from the following problem using inverse method.

(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 £1000 p.a received for 10years when the discount rate is 8%. (3marks)

b) Calculate the present value of £16000 received in 10 years time with a discount rate of 12% (3marks)

c) How much will £6000 amount to at 12% compound interest over 6 years? (4marks)

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

e) Compute the value of 11^{th} term and the sum of the first 20 terms of the G.P 2, 4, 8, 16... (4marks)

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