

Mount Kenya



University

UNIVERSITY EXAMINATION 2010/2011
SCHOOL OF BUSINESS AND PUBLIC MANAGEMENT
DEPARTMENT OF ACCOUNTING AND FINANCE
BACHELOR OF

UNIT CODE: 112

TITLE:BBM

DATE: APRIL 2011

MAIN

TIME:2HRS

Answer question one compulsory and any other two questions.

Questions one (compulsory 30 mks)

a) Given that $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$,

$A = \{\text{prime number}\}$ $B = \{\text{even numbers}\}$

i) Find $A \cap B$ (1mk)

ii) Find $\{A \cup B\}$ (1mk)

B) A mixed hockey team containing 5 men and 6 women is to be chosen from 7 men and 9 women. In how many ways can this be done? (3mks)

c) Write $\sqrt{63}$ as the simplest possible surd. (2mks)

d) Given that $f(x) = 25 - x^2$ and that $g(x) = \sqrt{x}$ find $fg(x)$ (2mks)

e) Given that $p = \begin{pmatrix} 3 & 4 \\ -4 & 3 \end{pmatrix}$ and $A = \begin{pmatrix} 2 & 0 \\ 0 & 1 \end{pmatrix}$ find the matrix m , where $m = p^{-1}Ap$

f) Use product rule to differentiate the expression $= (x^2 - 3)(x + 1)^2$ (4mks)

g) Evaluate $\int 3(5x - 25x) dx$ (4mks)

h) Find the seventh term in the Binomial expansion $\left(2 + \frac{1}{4}x\right)^8$ (3mks)

i) solve the equation $3^{2y-5} = 2^{y-2}$ (3mks)

j) Evaluate without using tables or calculator

$$\sqrt{1 + \frac{1}{2} \log 0.16 + \frac{1}{3} \log 8} \quad (3\text{mks})$$

QUESTION TWO (2MKS)

a) Solve the following matrix equation (use a matrix method)

$$\begin{pmatrix} 5 & 3 \\ 8 & 5 \end{pmatrix} \begin{pmatrix} u & x \\ v & y \end{pmatrix} = \begin{pmatrix} 2 & 3 \\ 3 & 4 \end{pmatrix} \quad (4\text{mks})$$

b) Evaluate the definite integral $\int_1^2 \frac{1}{(x-1)(2x+1)} dx$

c) Solve the following pairs of simultaneous equations involving logarithms.

$$2 \log x = \log (y + 13)$$

$$\log (x - y) = 0 \quad (4\text{mks})$$

d) Express the following statement in form of \int^5

$$\sqrt{112 - x} \int 20$$

$$\sqrt{140 - x} \int 45 \quad (4\text{mks})$$

e) Expand the following into ascending powers of x upto and including $x^3 \left(1 + \frac{x}{12}\right)^6$

use your expansion to evaluate $\left(\frac{5}{4}\right)^6$ (4mks)