

UGANDA MARTYRS UNIVERSITY

FACULTY OF BUSINESS ADMINISTRATION AND MANAGEMENT

UNIVERSITY EXAMINATION

SEMESTER ONE 2013/2014

FIRST YEAR EXAMINATION FOR BACHELOR OF BUSINESS
ADMINISTRATION AND MANAGEMENT

SPECIAL/ SUPPLEMENTARY EXAM
FUNDAMENTALS OF MATHEMATICS

DATE:

TIME: 3 HOURS

Instructions:

- i. *Question one is compulsory*
- ii. *Attempt question one in PART A and any other three questions in PART B*
- iii. *Show all workings and they have to be clear and tidy*

SECTION A
QUESTION ONE

(40 marks)

1. Use BODMAS to work out the following

(i) $2 \times 6 + 3 - 4 \div 2 - 5 + 20 \div 5 \times 3^2 + 50$

(ii) $(3+3-5) \times (15-5) \times 10 - 99$

(iii) $10 + 6 \div 3 + 2 \times 8 - 6$

(iv) $(1 - 1/2) \text{ of } 20 \div 2 \times 10 - 2$

2.

a) Make x the subject of the formula

(i) $y = mx + c$ (ii) $y = 2(x+a)$ (iii) $y(x+z) = 3z(x+y)$ (iv) $ax + b(x-a) = ay$

b) Change the subject to Q in the following formulas.

(i) $P = QR$ (ii) $P = RQ$ (iii) $P = Q + R$ (iv) $QP = R$ (v) $PQ = R$

3. simplifying the following and give the solution in index form:

(i) $18a^7 + 6a^5 \times a^2$

(ii) $(a^2b^{-3})^{-7}$

(iii) $(3a/4)^{-2}$

(iv) $(3^6/2^3)^{-2/3}$

4.

(a) Express the numbers as roots of a single number: ${}^3\sqrt{2^3} \times {}^3\sqrt{5}$

(b) Simplify : (i) $\sqrt{128}$ (ii) $\sqrt{80} + \sqrt{43} - \sqrt{25}$ (iii) ${}^5\sqrt{3 \times 7^5} \sqrt{64}$ (iv) $\sqrt{45}/(\sqrt{45} - \sqrt{15})$

5. Find the inverse of each of the following functions in the

form $x \longrightarrow \dots$

(a) $f(x) = 3x + 4$

(b) $f: x \longrightarrow 4(x-1)$ (c) $f(x) = 3(2x+5)$ (d) $g: x \longrightarrow -8x+3$

(e) $g(x) = \frac{1}{2}(3x+4) + 6$

SECTION B (20 Marks each)

1.

a) Find the gradient of the line adjoining the following pairs of points.

- | | | |
|------|---------|---------|
| i) | (9, 4) | (8, 7) |
| ii) | (3, 8) | (-1, 2) |
| iii) | (4, 3) | (-2, 3) |
| iv) | (-2, 5) | (3, 1) |
| v) | (1, -4) | (6, 2) |

b) Find the equation of the straight line passing through the following points A and B.

| A | | B |
|------|----------|---------|
| i | (2, 4) | (3, 7) |
| ii. | (-1, 2) | (1, -4) |
| iii. | (-2, -3) | (7, 2) |
| iv | (3, -1) | (-2, 3) |
| v | (2, 0) | (-1, 3) |

2. Solve the following quadratic equations by using the formula. Give answers exactly (where possible) or to 4d.p.:

- i) $x^2 + 8x + 1 = 0$ ii) $x^2 + 7x - 2 = 0$ iii) $x^2 + 6x - 2 = 0$
 iv) $-x^2 + 3x + 1 = 0$ v) $-2x^2 - 3x + 1 = 0$

3. Find the values of x_1 , x_2 and x_3 in the equation below using matrix system

$$x + y + z = 6$$

$$2y + 5z = -4$$

$$2x + 5y - z = 27$$

4.

a) Solve by substitution

i. $-x + y = -1$

$$3x + 2y = 13$$

ii. $3x + 2y = 18$

$$6x - 5y = 9$$

b) Solve using elimination

i. $4x - 5y = 3$

$$3x + 5y = 11$$

ii. $4x - 3y = -3$

$$5x + 2y = 25$$