UNIVERSITY EXAMINATIONS

2012/ 2013 ACADEMIC YEAR

FOR THE DIPLOMA OF
BUSINESS MANAGEMENT

COURSE CODE: DIB 102   **COURSE TITLE:** QUANTITATIVE METHODS

DATE: 21st August 2013   **TIME:** 9.00am – 12. noon

Instructions to Candidates

- Attempt ALL Questions
- Show all your workings
- Do not write on the question paper

QUESTIO ONE

a) Briefly explain the following types of functions specifying the general form for each

(6 marks)

    i.   Linear function

    ii.   Quadratic function

b) The price of an item is shs 35 when 250 items are demanded but when only 50 itms are demanded, the price rises to shs. 55 per item. The production cost is given by 5q +200.

    i.   Drive a linear price function   (5 marks)

    ii.   What is the firm's revenue function   (5 marks)

    iii. Determine the firms marginal revenue function at q production level (6 marks)

    iv. What is the maximum profit attainable by the firm   (5 marks)

QUESTION TWO

a) From the following function, calculate the gradient when x = 5. $Y=3x^2 - 4x+8$ (3 marks)

b) Evaluate the following

    i.   Integrate $p=5t^4$ with respect to t between t=1 and t=3   (4 marks)

    ii.   Differentiate q = 3x2 + x4-2y4+5y with respect to y   (3 marks)

c) A firm which produces metal bars has the following marginal cost function: mc=3x2 -8x+40. The fixed cost of the firm is US$80. Find;

    i.   The total cost functionof the firm   (5 marks)

    ii.   Cost of producing 100 metal bars   (4 marks)

d) A contract employee who received a fixed increment in 0his salary had a final salary of sh. 18,800 after ten months. If his total salary was shs. 134,000 over the ten months, what was his initial salary and the fixed increment.   (7 marks)

QUESTION THREE

a) Explain the following;

    i.   Unit matrix (3 marks)

    ii.   Square matrix (3 marks)

b) Giving a valid example, explain the various was in which sets can be specified (6 marks)

c) Calculate the present value of an annuity of shs. 10,000 lasting 100 years at an interest rate of 5 percent per annum (5 marks)