



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF BUSINESS AND ECONOMICS
UNIVERSITY EXAMINATION FOR BACHELOR OF BUSINESS ADMINISTRATION
WITH IT

COURSE CODE: ABA 107
COURSE TITLE: MANAGEMENT MATHEMATICS I
EXAM VENUE: **STREAM:**
DATE: **EXAM SESSION:**
TIME: 2.00 HOURS

Instructions:

- 1. Answer any three Questions (Question One is Compulsary)**
- 2. Candidates are advised not to write on the question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

ABA 107 (MANAGEMENT MATHEMATICS 1)

Q1a) i. Mention any 3 applications of exponential functions (3mks)

ii. Explain pay back and net present value methods in capital budgeting (4mks)

iii. Explain the following in relationship with set theory: - universal set, sub-set, intersection of set and union of set. Using relevant examples (4mks)

b) Given set A= (1,2,3), set B=(2,3,4,5) and C= (1,4,6). Complete:-

- | | | | |
|------------------------|----------------------|----------------------------|-------------------------------------|
| i. $A \cap B$
(1mk) | ii. $A - B$
(1mk) | iii. $A \Delta B$
(1mk) | iv. $(A - B) \cup (B - A)$
(1mk) |
|------------------------|----------------------|----------------------------|-------------------------------------|

i. A company has 800000/= and considers investing in either project x or project y. Based on the interest factor of 10% given the cash inflows of the 2 projects. Advice accordingly on the most ideal for investment using

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|--------|---------------------|----------|
| i. NPV | ii. Pay back method | (15mks). |
|--------|---------------------|----------|

Q2. The Demand function for a product is Quadratic and passes through points (x, y) which are (1,320), (2, 180) and (4, 20).

a) Determine the function in the form $y=a+ b_1x+b_2x^2$ (10mks)

b) If x refers to advertisement in 000's and y sales in '000's. determine sales when advertisement is 7 (10mks)

Q3. The rate of return in a company has an exponential trend in the form $e^{0.02t}$ where t is time in years. If the current rate of return of the company is Kshs.30 million. Required:-

a) Rate of return after 10 years (10mks)

b) Time period when the rate of return doubles the original rate of return (10mks)

Q4. a) Solve the simultaneous equation.

$$-3/2x + 1/2y - 2 = 0$$

$$3/2y + 2/x + = 0 \quad (12mks)$$

Q5. a) The net present value of a project whose initial investment is 500,000/= after 5 years is 375,000/=. Determine the interest factor of the project (10mks)

b) The supply and demand function of a certain product are $S_x = 6x - 100$ and $D_x = 200 - 4x$ respectively. Determine the equilibrium price and quantity (10mks)