



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF BUSINESS & ECONOMICS
UNIVERSITY EXAMINATION FOR THE DIPLOMA OF BUSINESS
ADMINISTRATION
1ST YEAR 1ST SEMESTER 2024 ACADEMIC YEAR
MAIN CAMPUS

COURSE CODE: BBM 2112

COURSE TITLE: BUSINESS MATHEMATICS

EXAM VENUE: MAIN

DATE:

EXAM SESSION:

DURATION: 1 HOUR 30 MINUTES

INSTRUCTIONS

- 1. Answer QUESTION ONE and any other TWO questions**
- 2. Show all your workings.**
- 3. Do not write anything on the question paper**

DURATION; 1 HOUR 30 MINUTES.

QUESTION ONE(20MKS)

a) Determine how long will take for a project whose todays value is Ksh 750,000 to be valued at Ksh 150000 given the interest is charged at 4% per annum and interest is computed

- a. Annually (5mks)
- b. Semiannually (5mks)
- c. Quarterly (5mks)

b)The table shows the sales of new cars by quarters during a period of Three years

YEAR	Quarter1 Sh Million	Quarter 2 Sh Million	Quarter3 Sh Million	Quarter4 Sh Million
2014	55	76	61	77
2015	54	65	52	81
2016	59	83	78	93

i)Determine seasonal indices using moving average method. (5mks)

ii)Determine deseasonalised sales. (5mks)

iii)Forecast adjusted sales for each quarter in 2017(5mks)

QUESTION TWO (20MKS)

Hagivan Investment Limited has to choose which one of the three projects to undertake. The cash Flows of each project be as follows

YEAR	Project X(Kshs)	Project Y(Ksh)	Project Z(Kshs)
0	(320,000)	(240,000)	(200,000)
1	80,000	120,000	60,000

2	80,000	100,000	60,000
3	120,000	100,000	60,000
4	120,000	80,000	60,000
5	30,000	20,000	60,000
6	-	-	60,000

The firm's cost of capital is 14% per annum

Required:

Which project should be given priority based on payback and NPV methods. (20mks)

QUESTION THREE(20MKS)

- Differentiate the price function $y(f) = 2x^2 - 7x + 10$ when $x = \text{Ksh } 20$ representing the cost function. (6mks)
- Integrate the function $\int(5x^2 - 8x + 5) dx$ and substitute $X = \text{Ksh } 50$. (8mks)
- State three applications of differentiation and integration (6mks)

QUESTION FOUR(20MKS)

a)

	Growing	Declining
Stock	70	-13
Mutual funds	53	-5
Bonds	20	20
Probability	0.4	0.6

Using a decision tree, make a decision on the investment that is viable. (15mks)

b) State the applications of decision making(5mks)