TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF APPLIED SCIENCES

DEPARTMENT OF MATHS AND PHYSICS

UNIVERSITY EXAMINATION FOR:

BACHELOR OF SCIENCE IN MATHEMATICS AND FINANCE

BMS 4151: MATHEMATICAL FINANCE

END OF SEMESTER EXAMINATION

SERIES:JULY 2017

TIME:2HOURS

DATE: JULY 2017

Instructions to Candidates
You should have the following for this examination
-Answer Booklet, examination pass and student ID
This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other
TWO questions.
Do not write on the question paper.

QUESTION 1

The following table shows the test scores made by salesmen on an intelligence test and their
weekly sales:

Salesmen	Test Score	Sales (Sh '000')
1	40	2.5
2	70	6.0
3	50	4.0
4	60	5.0
5	80	4.0

6	50	2.5
7	90	5.5
8	40	3.0
9	60	4.5
10	60	3.0

Required:

  i)   Calculate the regression line on sales on tests.   (14 marks)
  ii)   Estimate the probable weekly sales volume if a salesman makes a score of 100.
                                                                        (6 marks)
  iii) Explain the differences between correlation and regression analysis   (6 marks)
  iv)   Explain 2 main uses of regression analysis   (4 marks)

QUESTION 2

a) The following data relates to the year 2005 to 2007.

| Item | 2005 | | 2007 | |
	Price (shs)	Qty (kgs)	Price (shs)	Qty (kgs)
X	2	25	5	28
Y	3	15	2	25
Z	15	4	3	4

Using 2005 as the base year, compute the following indices

  i)   Laspeyre's price index   (4 marks)
  ii)   Paasche's price index   (4 marks)
  iii) Fisher's index number   (4 marks)
  iv)   Marshall-Edgeworth index   (4 marks)
  b) Outline FOUR factors to be considered when constructing a price index number
                                                                        (4 marks)

QUESTION 3

a) Allan invested sh 20000 and then added sh 5000 per year to the investment for 4 years.
    Find out the total amount of deposit after 4 years if the rate of interest earned is 10% per
    annum.   (14 marks)

b) Outline 3 advantages and 3 disadvantages of NPV methods of project appraisal.

(6 marks)

QUESTION 4

Kikumini manufacturers acquired a combined harvester in May 2003 at a cost of sh 4 million. It had an estimated useful life of 10 years after which it could be sold for sh 0.2 million. In May 2012 the harvester was sold for sh 1.35 million. The company had a policy to provide for full year depreciation on the year of purchase but no depreciation on the year of disposal

Required:

i)   Calculate the annual depreciation for the asset   (6 marks)
ii)   Calculate the provision for depreciation on the asset as at May 2012   (6 marks)
iii) Calculate the net book value of the asset at the day it was disposed   (4 marks)
iv)   Calculate whether the manufacturer made a profit or loss on the disposal of the combined harvester   (4 marks)

QUESTION 5

Company XYZ contemplates on investing in any of 2 different projects which have an initial investment of Ksh 1000000. The investments are expected to yield the following cash inflows over the next five years. The required rate of return is 10%.

Year	Project A	Project B
	Ksh	Ksh
1	32500	300000
2	290000	300000
3	255000	250000
4	200000	270000
5	220000	210000

a) Using Pay-Back period, advice the company on which project to invest in.   (7 marks)
b) Using Net Present Value method, advice the company on which project to invest in.

(9 marks)
c) Using Profitable Index, advice the company on which project to invest in.   (4 marks)