



**A F R I C A**

**UNIVERSITY**

*(A United Methodist-Related Institution)*

**INVESTING IN AFRICA'S FUTURE**

**FACULTY OF EDUCATION**

**BACHELOR OF EDUCATION (BLOCK RELEASE)**

**FIRST SEMESTER 2013/2014 MAIN EXAMINATION PAPER**

<b>COURSE CODE</b>	MMS202
<b>COURSE TITLE</b>	Quantitative Analysis for Business Decision 1
<b>GROUP</b>	B ED Block Release
<b>DATE</b>	April/May 2014
<b>DURATION</b>	3 Hours
<b>LECTURER</b>	E K Nyatanga
<b>INSTRUCTION</b>	<ol style="list-style-type: none"><li>1. Answer any four (4) questions from the five questions.</li><li>2. All questions have equal marks (25)</li><li>3. You should be provided with statistical formulae sheets for this examination</li></ol>

### QUESTION 1

The following table gives data for a simple project.

ACTIVITY	PRECEEDING ACTIVITY	DURATION
A	----	3
B	----	3
C	-----	7
D	A	1
E	D, J	2
F	B	2
G	C	1
H	E, F, G	1
J	B	1

You are required to:

- (a) Draw a network diagram for the project **(10 marks)**
- (b) Insert the earliest and latest possible event times. **(10 marks)**
- (c) Indicate the critical path. **(5 marks)**

### QUESTION 2

A population of 400 businesses in a given city had the following profit distribution last year:

Profits (thousand dollars)	Frequency
( - 100) to under ( - 50)	5
( -50) to under 0	35
0 to under 50	260
50 to under 100	47
100 to under 150	34
150 to under 200	19

- (a) Find the population's average profits, median profit and modal profit. **(12 marks)**
- (b) Calculate the variance and coefficient of variation for the population above.  
**(8 marks)**
- (c) If the profit distribution is skewed, calculate and interpret the skewness. **(5 marks)**

### QUESTION 3

A panel of men and a panel of women rated 12 television programmes, each on a scale from 1 to 100 (1 = worst; 100 = best). The mean ratings for the programmes were as follows:

Programme	Men's rating	Women's rating
1	61	86
2	55	70
3	83	58
4	42	87
5	31	52
6	64	48
7	69	78
8	78	92
9	92	67
10	94	82
11	70	75
12	28	59

- (a) Find the level of association between the mean ratings for men and women of the 12 TV programmes using Pearson's correlation calculation methods. **(10 marks)**
- (b) Calculate the rank correlation coefficient as a measure of consistency for the views of the two groups. **(10 marks)**
- (c) Comment on the findings in (a) and (b) above. **(5 marks)**

#### QUESTION 4

The following data gives the age and price of a certain make of car. The ages are in years and the prices are in thousands.

Car	Age (years) x	Price (thousands) y
1	5	85
2	4	103
3	6	70
4	5	82
5	5	89
6	5	98
7	6	66
8	6	95
9	2	169
10	7	70
11	7	48

- (a) Which is the dependent variable and which is the independent variable? **(4 marks)**
- (b) Estimate the least squares regression line to predict the price of the car from the age of the car. **(16 marks)**
- (c) Estimate the price of a 3 year old car. **(5 marks)**

### **QUESTION 5**

A business project is being considered which has \$12 000 initial costs associated with revenues ( i .e. inflows) over the following four years of \$8 000, \$12 000, \$10 000 and \$6 500 respectively. If the project costs (i.e. outflows) over the four years are estimated as \$8 500, \$3 000, \$1 500 and \$1 500 respectively and the discount rate is 18.5 %, evaluate the project's NPV. **(25 marks)**

**END OF EXAMINATION QUESTION PAPER**