UGANDA MARTYRS UNIVERSITY
NKOZI

UNIVERSITY EXAMINATION
July 2022

FACULTY OF SCIENCE

END OF SEMESTER TWO FINAL ASESSMENT

BJMC II

STATISTICS AND MATHEMATICS FOR JOURNALISM

DATE: Thursday, 21/7/2022

TIME: 09:30AM – 12:30 PM

DURATION: 3HRS
VENUE: ROOM LAW I

Instructions:

1. *Carefully read through ALL the questions before attempting*
2. ***ANSWER FOUR (4) Questions ONLY**. (Each question carries equal marks]*
3. *No **names** should be written anywhere on the examination book.*
4. *Ensure that your **ID number** is indicated on all pages of the examination answer booklet.*
5. *Ensure your work is **clear** and **readable**. Untidy work shall be penalized*
6. *Any type of examination Malpractice will lead to automatic disqualification*
7. *Do not write anything on the questions paper.*

QUESTION 1

"Executives at all levels in business and industry come across the problem of making decisions at every stage in their day-to-day activities. Statistics enhance their ability to make long range plans and solve every day problems of running a business and industry with a greater efficiency, competence and confidence". Comment on this statement using examples. **[25 marks]**

QUESTION 2

(a) Briefly explain the following terms as applied to probability theory

(i) Possibility space

(ii) Mutually exclusive events

(iii) Statistically independent events

(iv) Un Certainty situation **[2 marks @]**

(b) A business firm from Mpigi District saved money for investment. The management wanted to start two projects (I & II). Below are expected sales from the projects.

PROJECT I		**PROJECT II**	
SALES ($)	Probability	SALES ($)	Probability
5,000	0.25	11,000	0.15
7,000	0.60	6,000	0.60
9,000	0.15	3,500	0.25

The firm's profit is 80% of the sales.

(i) Calculate the expected profit under each project. **[08 marks]**

(ii) Which project would you recommend to the management for the better returns? **[02 marks]**

(iii) Calculate the standard deviation of the distribution of the profits for each project **[05 marks]**

(iv) As a risk expert, give advice on the best project? **[02 marks]**

QUESTION 3

The data below shows the amount of cotton in [000's of bales) produced by growers Union in Kasese District over a certain period of time.

70	41	34	55	45	66	73	77	80	30
50	45	72	50	27	70	55	70	85	70
30	50	60	53	40	45	35	55	20	81
25	51	35	62	60	30	45	35	50	89
53	23	28	65	68	50	65	34	35	76

(a) Beginnings with the 20-29 class, and using intervals of equal width, construct a frequency table for the data. **[08 marks]**

(b) Draw a cumulative frequency curve and use it to estimate the median production **[05 marks]**

(c) Calculate:

(i) the mean production **[05 marks]**

(ii) the standard deviation **[05 marks]**

(iii) Coefficient of variation **[02 marks]**

QUESTION 4

(a) What is statistics? **[02 Marks]**

(b) List common departments where statisticians work? **[08 marks]**

(c) State the roles of statisticians in governmental and non-governmental departments

[15 Marks]

QUESTION 5

(a).(i) What is correlation? **[02 marks]**

(ii) List three types of correlation, illustrating clearly using scatter diagrams to define them. **[08 marks]**

(b) The table below displays data that was collected when a procurement manager wanted to find out whether there was a relationship with the age of vehicles and cost of maintaining them.

Age of Vehicle (x)	5	10	15	20	25
Cost of maintenance (y) '000	100	200	250	310	360

(i) Plot the above on a scatter diagram. **[05 marks]**

(ii) Calculate the correlation coefficient **[08 marks]**

(iii) What do you have to say about the relationship between the two? **[02 marks]**

QUESTION 6

(a) (i) What is sampling? **[2 marks]**

(ii) Why is sampling very important in business surveys? **[10 marks]**

(b) Distinguish between probability sampling and non-probability sampling and give the examples of each. **[13 Marks]**

END