COLLEGE OF BUSINESS, PEACE, LEADERSHIP AND GOVERNANCE

NMMS 202: QUANTITATIVE ANALYSIS 1

END OF FIRST SEMESTER EXAMINATIONS

NOVEMBER 2021

LECTURER: TARAMBAWAMWE P

DURATION: 5 HOURS

INSTRUCTIONS

Answer two questions
Question one is compulsory
Choose either question two or three

Credit will be awarded for logical, systematic and neat presentations

---

Question One (Compulsory)

a. For the following data, identify whether or not they are 1. Categorical [nominal or ordinal], or 2. Numerical [interval/ratio] [discrete or continuous] Give examples of possible values for each random variable. [Example: number of children living in a given home – "interval data [discrete], (0, 1, 2, 3, …)"

i. marital status

ii. Number of students who drop this statistics course.

iii. Time student spends studying for their first statistics test.

iv. The weight loss over the first week of a "fad" diet

v. The part on a new computer that breaks during the first year of ownership [5 marks]

b. Given a data set consisting of 75 data values has 109 as the highest value and 29 as the lowest value, construct the class intervals , showing the class limits of all the classes. [10 marks]

c. With suitable examples highlight the rules relating to the drawing of cross tables, multiple bar charts and composite bar charts. Discuss the circumstances which would require the use of each form of data presentation. [10 marks]

Question Two

a. A quality control manager takes a random sample of 100 packets of biscuits from a production line in order to check the mean weight of the whole production. The net weights he found are tabulated below:

Weight in grams	Frequency
Less than 247	0
247 and less than 248	4
248 and less than 249	21
249 and less than 250	40
250 and less than 251	27
251 and less than 252	7
252 and less than 253	1
Over 253	0

Estimate the mean, mode, median of the production. [10 marks]

b. . Random samples of 1000 persons have been obtained for three countries and their incomes have been measured. The summary statistics for the per capita income distribution over the three countries is given below.

STATISTIC	A	B	C
MEAN	10000	10000	10000
MEDIAN	14000	8000	10000
STANDARD DEVIATION	2000	1500	1000
LOWER VALUE	9000	7000	8500
HIGHEST VALUE	15000	12000	12000

Discuss using the variations in the earnings in the three countries and suggest which country would you comment your uncle to go and find a job, use the statistics in the table in your presentation.. [15 marks]

Question Three

a.

i. Explain the relationship between significance level and confidence level. [2 marks]

ii. Statistical tests ensure that decisions are rule bound and arbitrariness avoided. Discuss. [10 marks]

b. Practical and theory marks for a random sample of 10 chemistry students were as follows:

Student	A	B	C	D	E	F	G	H	I	J
Practical	63	83	54	63	71	45	68	68	62	52
Theory	50	75	60	56	63	32	55	69	67	43

i) Calculate a 95% confidence interval for each type of assessment separately. [10 marks]

ii) Use these two intervals to investigate whether there is a difference between the mean marks produced by the different types of assessment. [3 marks]

END OF EXAMINATION