GWANDA STATE UNIVERSITY

FACULTY OF BUSINESS SCIENCES AND MANAGEMENT

DEPARTMENT OF MARKETING

BACHELOR OF COMMERCE HONOURS DEGREE IN MARKETING

FINAL EXAMINATION
SEPTEMBER 2024
DURATION: 3 HOURS

QUANTITATIVE ANALYSIS FOR BUSINESS 1 [BMA1106]

Instructions

Candidates should attempt **ALL** questions from **Section A** (40 marks) and **ANY TWO** questions from **Section B** (30 marks each).

Instruments and Materials

- Calculator.
- Statistical tables.

SECTION A: Answer ALL questions [40].

A1. (a.) Define the following terms;

(i) Measures of dispersion. [3]

(ii) Measures of central tendency. [3]

(iii) Standard deviation. [3]

(iv) Probability. [3]

A2. (a.) Differentiate between descriptive statistics and Inferential statistics. [4]

(b.) With the aid of examples, briefly explain, qualitative and quantitative data. [6]

A3. The monthly membership fees in dollars, of a random sample of health clubs were found to be;

$$43, 44, 22, 73, 69, 48, 67, 33, 56, 67$$

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(a) What is the average membership fee? [4]

(b) Calculate the median membership fee. [4]

A4. According to the United Nations Environmental Program and World Health Organisation, in Harare, Zimbabwe, air pollution standard for particulate matter are exceeded an average of 5.6 days per fortnight.

(i) Compute the probability the air pollution standards are exceeded exactly 10 days in a fortnight [5]

(ii) Compute the probability that air pollution standards are exceeded at most 2 days a week in a fortnight [5]

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SECTION B: Answer ANY two questions [60].

B5. According to a recent survey on consumer expenditure the monthly average household cell phone bill in Bulawayo's is 48.00 dollars with a standard deviation of 4.50 dolars from a random sample of 211 households.Suppose that a household is selected at random, what is the probability that;

(a.) It spends more than 60.00 dollars a month. [3]

It spends between 37.00 dollars and 56.00 dollars a month. [4]

(c.) Find the percentage of Bulawayo households who spend between 50.00 dollars and 58.90 dollars per month. [6]

(d.) Suppose that 13 percent of top cell phone users get bonus airtime from the network providers. What is the cut off monthly bill for a family to receive a bonus? [5]

(e.) Find the size of a bill above which 91percent of the household bills will lie. [5]

(f.) Find two bills symmetrically distributed about the mean between which 40 percent of the bills will lie. [4]

(g.) How many household are expected to spend less than 34.75 per month. [3]

B6. (a.) Suppose that a statistician wished to estimate the mean income per household, and that previous mean income ten years back was $R25300$. A random sample of forty (40) household in the city had a mean income of $R29400$, with a standard deviation of $R6325$.

(i.) Construct the 90 percent interval limits for the mean income per household. [10]

(ii.) Using results in part (i), would you conclude that the mean income per household had changed in the last decade? Explain your answer. [5]

(b.) Car parking spaces in a city centre are in short supply. The cost (in dollars) of parking a car for a whole day in seven public car parks within the city and the distances between the parking bays and the monument that is considered the centre of the city (in km) are:

Cost	5	5	8	10	12	15	18
Distance	1.5	1.2	0.8	0.5	0.4	0.2	0.1

(i) Calculate the correlation coefficient and comment on it. [7]

(ii) Calculate the covariance between distance and parking cost. [5]

(iii) Calculate the coefficient of determination and comment on it. [3]

B7. (a.) An embassy official with the Namibian Embassy in Zimbabwe has established from past experience that 11 percent of the visa applications are normally successful. Suppose that a batch 15 applications has just been submitted.

(i.) Find the probability that exactly 8 applications will be successful [5]

(ii.) Find the probability that at least 3 applications will be successful [7]

(iii.) Calculate the mean for the visa applications at this embassy. [3]

(b.) the following marks were scored by students in a company law Exam:

$$65, 98, 55, 62, 79, 59, 57, 90, 72, 56, 70, 62, 66, 80, 94, 79, 63, 73, 71, 85$$

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(i) Construct a frequency distribution table. [5]

(ii) Calculate the mean mark. [4]

(iii) Calculate the modal mark. [6]