

THE UNIVERSITY OF ZAMBIA
SCHOOL OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF GOVERNMENT AND MANAGEMENT STUDIES
2021/22 ACADEMIC YEAR DISTANCE EXAMINATION

PAS 2014: RESEARCH METHODS AND TECHNIQUES

INSTRUCTIONS: ANSWER ALL QUESTIONS IN SECTION A AND SECTION B

TIME ALLOWED: THREE HOURS

SECTION A: ANSWER ALL QUESTIONS (40 MARKS)

Q1. Distinguish between the following: (20 Marks)

- a. Pure research and applied research
- b. Independent variable and dependent variable
- c. Ordinal scale and interval scale
- d. Type I error and type II error
- e. Cross sectional study and longitudinal study
- f. Questionnaire and interview guide
- g. Purposive sampling and systematic sampling
- h. Qualitative research and quantitative research
- i. Conceptual framework and theoretical framework
- j. Filter question and matrix question

Q2. Define the following concepts: (10 Marks)

- a. Research
- b. Standard deviation
- c. Symmetrical distribution
- d. Nominal data
- e. Study population
- f. Research design
- g. Non probability sampling

- h. Data analysis
- i. Matrix question
- j. Research proposal

Q3. Indicate if the statements below are *True* or *False* (10 Marks)

- a. A parameter is a numeric characteristic of a sample.
- b. A one tailed test is a statistical test where extreme results leading to the rejection of the null hypothesis are located on either tail.
- c. A scientist testing the toxicity of a chemical in a laboratory changes the significance level from 10% to 1% thereby increasing type II error.
- d. Regression analysis is an example of a parametric test.
- e. The analysis of variance is a statistical test that is used to compare two or more group means.
- f. The use of the laws of probability to make inferences and draw statistical conclusions about populations based on sample data is referred to as descriptive statistics.
- g. The correlation coefficient r , ranges between $-1 \leq r \leq +1$
- h. A cumulative frequency distribution shows the number of observations failing above a given point.
- i. The standard deviation of the sampling distribution is called standard error.
- j. Snowball sampling is an example of probability sampling.

SECTION B: ANSWER ALL QUESTIONS (60 MARKS)

Q1. Twelve (12) children were given an intensive training in a quest to raise their Intelligence Quotient (IQ). The IQs of the children before and after the training are given below.

Initial IQ (X)	Post training IQ (Y)
89	103
95	97
82	100
101	98
91	98
85	88
96	97
93	105
86	99
99	110
90	107
84	86

Compute the following: (30 Marks)

- a. Regression equation
- b. The expected IQ after training from a child with an initial IQ of 80
- c. Correlation coefficient
- d. Coefficient of determinant

Q2. An investor is considering alternative towns, Lusaka and Kitwe, for the location of a supermarket. He decides to use the mean household income in the two cities as a proxy variable for purchasing power. For a random sample in Lusaka with 30 households, the average monthly income is K4500 with a standard deviation of K 150. For a random sample of 40 households in Kitwe, the average monthly income is K 4460 with a standard deviation of K240. The investor eventually decides to construct the supermarket in Lusaka on the premise that the purchasing power of Lusaka residents is more than that of Kitwe residents. Is his decision justified? Test at 5% level of significance. (15 Marks)

Q3. The data below shows the numbers of 50 kg bags of maize harvested by 1, 000 small scale Farmers grouped in intervals of 5.

Class-interval	Frequency
10 – 14	8
15 – 19	30
20 – 24	40
25 – 29	94
30 – 34	126
35 – 39	156
40 – 44	176
45 – 49	138
50 – 54	118
55 – 59	70
60 – 64	20
65 – 69	16
70 – 74	8

Compute the following: (15 Marks)

- a. Mean
- b. Standard deviation

END OF EXAMINATION