EX0012

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF COMMERCE

JUN 2024

DEPARTMENT OF ECONOMICS

PROGRAMME: BSC ECONOMICS HONOURS DEGREE

EC217: COMPUTER AND STATISTICAL APPLICATIONS IN ECONOMICS:

DURATION: 2 HOURS

INSTRUCTIONS:

1. Answer all questions
2. Students should use the specified software packages to attempt each question.
3. All answers should be saved in one folder on the desktop. Use your registration number as folder name.
4. NO CELL PHONES ALLOWED in the examination room.

QUESTION 1

Part A: Microsoft excel

Using the data on soft drink purchases given in Microsoft Excel worksheet 1a:

a) Construct a frequency distribution table for qualitative data. **(4 marks)**

b) Construct a well labelled bar graph. **(4 marks)**

c) Aggregate the value of sales per week and rank the weeks by sales value. **(5 marks)**

Using the data on weekly sales by location in Microsoft Excel worksheet 1b:

c) Calculate the mean sales, the standard deviation and the inter-quartile range for location B and C. **(6 marks)**

d) Perform a t-test of the null hypothesis that production location A and location C have the same average sales. **(5 marks)**

e) Perform an ANOVA test of the null hypothesis that all three locations have the same average sales. **(5 marks)**

Part B: SPSS

Using the data on weekly sales by location in Microsoft Excel worksheet 1b:

a) Select week 1 to week 23 and perform the Kruksal-Wallis test for the hypothesis that all the three locations have the same average sales. **(5 marks)**

b) Draw a pie chart to show the distribution of sales by location in week 13. **(4 marks)**

Using data on the determinants of wages in SPSS worksheet 1:

c) Label the values for all the nominal and ordinal variables and construct the frequencies. **(5 marks)**

d) Find the correlation between experience and experience squared. **(3 marks)**

QUESTION 2

E-views questions

Import Microsoft Excel worksheet two to E-views and attempt the following questions:

The earnings equation for workers in the manufacturing sector is given as follows:

$$wages = \alpha + \beta_1 education + \beta_2 \exp erience + \beta_3 gender + \mu$$

where, *wages* = weekly wages in hundreds of dollars

education = number of years of schooling

exp *erience* = experience in years

gender = 1 "if male" and 0 otherwise

i) Calculate the summary statistics for all the quantitative variables in log form and comment. **(5 marks)**

ii) Draw a scatter plot between wages and experience and impose a line of best fit. **(3 marks)**

iii) Estimate the regression model specified above using OLS. **(4 marks)**

iv) Generate the variable experience squared. **(2 marks)**

v) Test for the presence of multicolinearity among the independent variables. **(3 marks)**

vi) Re-estimate the model with experience squared as another variable and comment on the significance of the whole model in comparison to the one in (iii) above. **(6 marks)**

vii) Test for model stability. **(3 marks)**

END OF PAPER