JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL INFORMATICS AND INNOVATIVE SYSTEMS

UNIVERSITY EXAMINATION FOR SCIENCE DEGREE

3RD YEAR 2ND SEMESTER 2013/2014 ACADEMIC YEAR

CENTRE: MAIN

COURSE CODE: SCS 324

COURSE TITLE: STATISTICAL ANALYSIS USING SPSS

EXAM VENUE: AH **STREAM:**

DATE: 17/12/2013 **EXAM SESSION: 2.00 – 4.00 PM**

TIME: 2 HOURS

Instructions:

1. **Answer ALL questions in section A and ANY other 2 questions in section B**
2. **Candidates are advised not to write on the question paper.**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room.**

SECTION A (COMPULSORY- 30 Marks) use the sample questionnaire to answer questions in section A

SAMPLE QUESTIONNAIRE

The following questionnaire is designed for you to provide some useful information on "**Influence of liquidity level on performance of commercial banks in Kisumu County"** The information provided will be treated in confidentiality and respondents' anonymity will be highly assured.

SECTION A

Socio Demographic Characteristic of the Bank

1. Role of respondent in the Bank

    1. Teller
    2. Accountant
    3. Branch Manager
    4. Auditor
    5. Non of the above

2. Banks Ownership status

    1. Private
    2. Government

3. Please indicate the size of the bank

    Value of total assets in Kenya _____

    Number of employees in Kenya_____

    Permanent employees _____

    Casual employees _____

Liquidity level factors that influence bank performance

Here are some factors that past research has put forward as components of liquidity the level that influence the performance of commercial banks. Please indicate your agreement or disagreement. For each factor please circle the appropriate number to indicate the level of importance as indicated in the likert scale below**.**

Extremely important- **(5),** Very important **(4),** Important **(3),** Not important **(2),** Extremely unimportant**(1)**

Please circle only one answer for each statement. There are no right or wrong answers to these questions so please give your opinion.

4. Rate in terms of importance how you think deposit withdrawals factors like; (monetary policies, insurance regulations and banking policies) as components of

	(5)	**(4)**	**(3)**	**(2)**	**(1)**
Banking policies	( )	( )	( )	( )	( )
Deposit insurance regulation	( )	( )	( )	( )	( )
Monetary policies	( )	( )	( )	( )	( )
Bank characteristics	( )	( )	( )	( )	( )

liquidity level influence the performance of your bank?

Question 1

a) Describe the procedure for designing a data entry screen that would be used to capture data from the questionnaire above.
{5 marks}

b) Prepare a codebook for the questionnaire provided, detailing each of the variable names and codes to be used to prepare the data for entry in SPSS. You need to clearly indicate the name, type, label and values associated with the variable
{3 marks}

c) Using the codebook you developed, describe how you would create value labels for question 4 (likert scale with options 1 to 5) . {5 marks}

d) How you would develop a new variable for employees grouped from the raw no of employees figures captured into SPSS {5 marks}

e) Differentiate the four levels of categorical data i.e nominal, ordinal, interval and ratio
{4 marks}

f) Indicate at least four types of statistical inference that one can make from a frequency distribution table with a histogram that has the normal curve {4 marks}

g) Give four practical application areas in social sciences where SPSS can be used
{4 marks}

QUESTION TWO

1. The first procedure in any statistical analysis is running the descriptive statistics. What are the main things as a researcher that a frequency distribution table would reveal to you?
   {8 marks}
2. Outline the importance of the under-listed tests in SPSS clearly mentioning statistical significant values and the related relevant statistics in each case.
   i. Independent Samples t-test {3 marks}
   ii. Paired Samples t-test {3 marks}
   iii. Mann-Whitney U-test {3 marks}
   iv. Chi Square test {3 marks}

QUESTION TWO

1. How would establish the following in SPSS for 2 variables. In each case clearly mention the statistical procedure and the relevant statistics

   a. Differences {4 marks}
   b. Relationship {4 marks}
   c. Association {4 marks}

2. With respect to normality discuss skewness and kurtosis illustrating your answer with sketches {8 marks

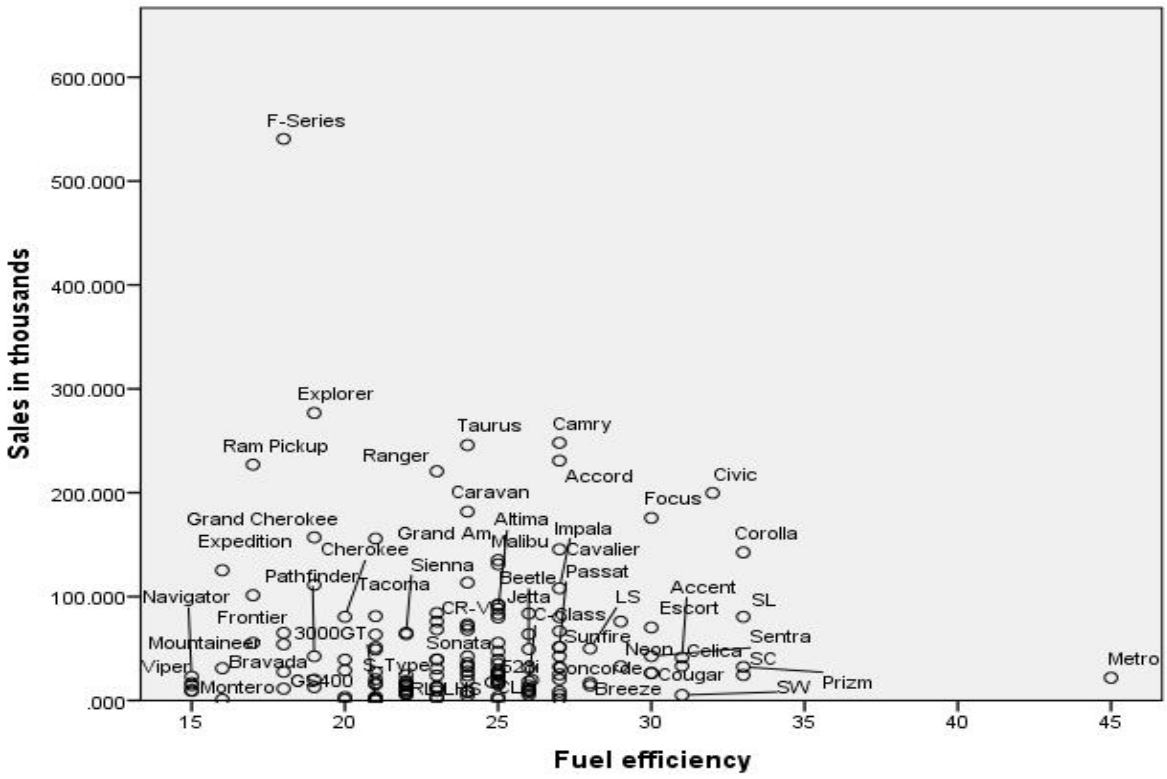
QUESTION THREE

1. In order to increase sales, motor vehicle design engineers want to focus their attention on aspects of the vehicle that are important to customers- for example, how important is fuel efficiency with respect to sales? One way to measure this is to compute the correlation between past sales and fuel efficiency. You have been tasked to undertake this work and after using Bivariate Correlations to measure the importance of fuel efficiency to the salability of a motor vehicle you obtained the following results.

		Sales in thousands	Fuel efficiency
Sales in thousands	Pearson Correlation	1	-.017
	Sig. (2-tailed)	.	.837
	N	157	154
Fuel efficiency	Pearson Correlation	-.017	1
	Sig. (2-tailed)	.837	.
	N	154	154

Interpret your findings {6 marks}

2. You further produced a scatterplot of *Sales in thousands* by *Fuel efficiency* and got the following findings



Interpret your findings {6 marks}

3. Use the diagram below to answer the questions that follow

Favor or Oppose Death Penalty for Murder

Respondent's Sex			Frequency	Percent	Valid Percent	Cumulative Percent
Male	Valid	Favor	502	78.3	82.7	82.7
		Oppose	105	16.4	17.3	100.0
		Total	607	94.7	100.0	
	Missing	DK	34	5.3		
	Total		641	100.0		
Female	Valid	Favor	572	66.6	73.2	73.2
		Oppose	209	24.3	26.8	100.0
		Total	781	90.9	100.0	
	Missing	DK	72	8.4		
		NA	6	.7		
		Total	78	9.1		
	Total		859	100.0		

Give an inference of the information presented above {8 marks}

QUESTION FOUR

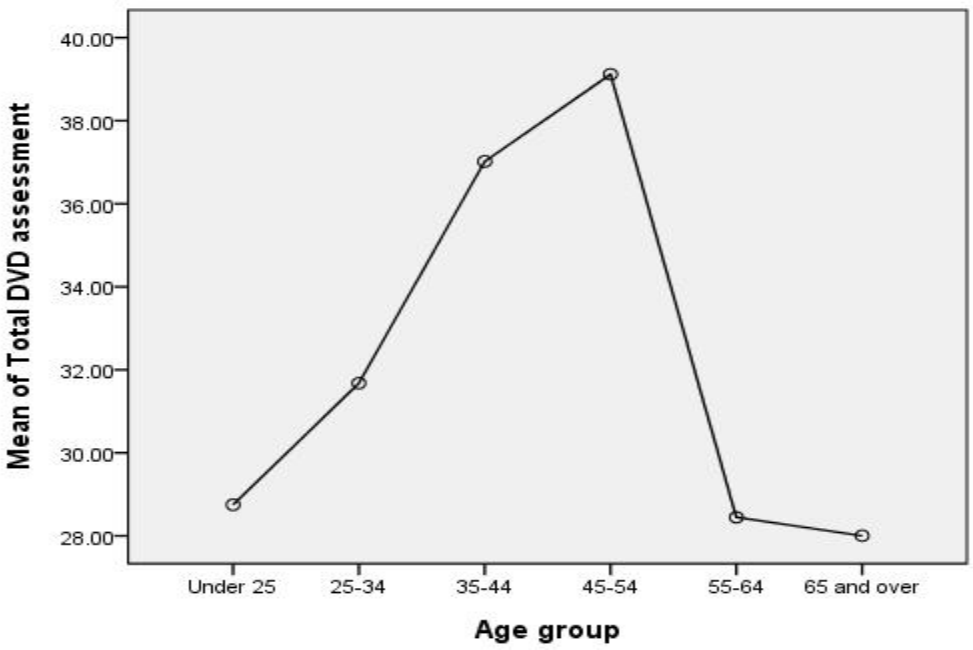
1. In response to customer requests, an electronics firm is developing a new DVD player. Using a prototype, the marketing team has collected focus group data. You have been tasked to use ANOVA to discover if consumers of various ages rated the design differently. Your finds are as follows

   ANOVA Table

Total DVD assessment

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1294.481	5	258.896	6.993	.000
Within Groups	2295.532	62	37.025		
Total	3590.013	67			

   Means Plot



   Interpret your finding in each output {12 marks}

2. describe the procedure in SPSS of arriving at the table and graph above. {8 marks}

QUESTION FIVE

Explain how you can perform the following in SPSS

Use the SPSS output for Linear Regression tables below to answer the following questions.

(a) Write down the linear regression equation. {4 marks}
(b) What is the value of the standard error of the estimate? {3 marks}
(c) How many degrees of freedom are associated with the t-value for the line of regression?

{4 marks}

(d) What is the value of the correlation coefficient? {2 marks}
(e) Confidence and Prediction Interval {3 marks}
(f) What is the 95% confidence interval for the mean value of $\hat{Y}$ when x = ? {2 marks}
(g) What is the 95% prediction interval for $\hat{Y}$ when x = ?
{2 marks}

Coefficients

Model	Unstandardised Coefficients		Standardised Coefficients	t	Sig
	B	Std Error	Beta		
Constant	2.129	.250	0.941	8.505	.000
Additive	.338	.050		6.821	.000

Model Summary

Model	R	R Square	Adjusted R Square	Std Error of the Estimate	Durbin-Watson
1	.941	.886	.867	.32121	2.321

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig
1 Regression	4.801	1	4.801	46.532	.000
Residual	.619	6	.103		
Total	5.420	7			