JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

UNIVERSITY EXAMINATION 2012/2013

1ST YEAR 1ST SEMESTER EXAMINATION FOR THE DEGREE OF MED

SPECIAL NEEDS EDUCATION

MAIN

COURSE CODE: EDU 804

TITLE: COMPUTER APPLICATIONS IN RESEARCH

DATE: 1/5/2013   TIME: 9.00-12.00NOON

DURATION: 3 HOURS

INSTRUCTIONS

1. This paper contains FIVE (5) questions
2. Answer question 1 (Compulsory) and ANY other 2 Questions
3. Write all answers in the booklet provided

:

Type, print and submit the document in the next 2 pages as exactly as you can. Marks will be awarded for accuracy, proportion and balance. The margins in the whole document are 2.54 cm all round.

Q 1. The font type and size in this question is Times New Roman, 12. The spacing

is 1.15

Separable (homogeneous) first-order linear ordinary differential equations

Since the separation of variables in this case involves dividing by y, we must check if the constant function $y=0$ is a solution of the original equation. Trivially, if $y=0$ then $y'=0$, so $y=0$ is actually a solution of the original equation. We note that $y=0$ is not allowed in the transformed equation. (2 marks)

We solve the transformed equation with the variables already separated by Integrating,

$$\ln|y| = \left(-\int f(t)\,dt\right) + C$$

where C is an arbitrary constant. Then, by exponentiation, we obtain

$$y = \pm e^{\left(-\int f(t)\,dt\right)+C} = \pm e^{C} e^{-\int f(t)\,dt}$$

(5 marks)

Below is a model that illustrates the association between child maltreatment and associated psychopathology and mediated by
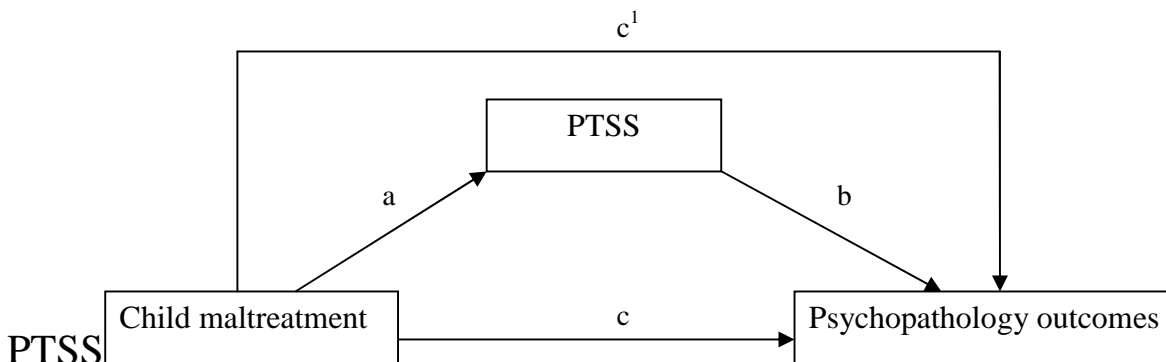

PTSS

2

Figure 5.1. Mediational Model with PTSS Mediating the Association between Child Maltreatment and Psychopathological Symptomatology

(8 marks)

References

Amato, P.R., & Keith, B. (1991). Parental divorce and adult well-being: A meta-analysis. *Journal of Marriage and the Family, 53 (1)*, 43-58.

African Network for the Prevention and Protection against Child Abuse and Neglect (ANPPCAN; 2006). ANPPCAN Kenya Chapter annual report 2005/2006. Retrieved from http://www.anppcankenya.co.ke/index.php.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood NJ: Prentice-Hall.

Bakermans-Kranenburg, M. J., Van IJzendoorn, M. H., & Kroonenberg, P. M. (2004). Differences in attachment security between African-American and white children: Ethnicity or socio-economic status? *Infant Behavior & Development, 27* , 417-433.

(6 marks)

Q.2. Produce and print Table 2 using the American Psychological Association (APA) format. The font type and size in this question is Times New Roman, 10.The spacing is 1.0.

Table 7.3

Regression Analysis Predicting Antisocial Personality Symptoms from Childhood Maltreatment Experiences with Social Desirability, Income, Age, and PTSS as Covariates

	R	R^2	R^2Ch	F_{change}	df	$Beta^1$	p
Step 1	.48	.23	.23	92.20	(1, 303)		<.01
Social Desirability						-.45	<.01
Step 2	.49	.24	.00	0.36	(2, 301)		.70
Income						.02	.70
Age						-.06	.28
Step 3	.50	.25	.02	7.23	(3, 300)		<.01
PTSS						.12	.05
Step 4	.51	.26	.01	0.71	(4, 296)		.59
Physical Abuse						.11	.11
Sexual Abuse						.03	.58
Neglect						-.01	.83
Witnessing violence						-.04	.50

(9 marks)

SECTION B

Table 2: Data input into SPSS data editor

Case N	Gender	YearSc	Age	FathEdu	MothEdu	Famic
36255.00	2	2	4	2	1	2
36265.00	1	2	5	4	3	3
36274.00	2	2	5	3	3	3
36281.00	1	1	5	3	3	8
36308.00	2	2	4	5	3	3
36311.00	2	3	7	3	3	2
36317.00	1	2	5	3	3	6
36328.00	1	2	5	7	7	1
36329.00	2	2	3	4	3	3
36337.00	1	2	4	4	4	2
36338.00	2	2	5	4	2	1
36339.00	1	2	2	5	5	7
36349.00	1	2	7	3	2	8
36351.00	2	2	5	5	3	6
36360.00	1	1	3	3	6	2
36361.00	2	1	3	3	1	1
36375.00	2	2	5	7	7	3
36376.00	2	2	4	4	6	7
36377.00	1	2	4	3	5	3
36378.00	1	2	3	7	7	3
36379.00	1	2	5	6	3	1
36382.00	2	2	4	2	2	1
36383.00	2	2	3	3	3	1
36396.00	1	2	3	3	1	6
36398.00	2	2	4	2	3	1
36403.00	2	2	5	5	2	3
36405.00	1	2	3	5	3	2
36406.00	2	2	3	5	3	8
36415.00	1	3	4	7	4	6
36426.00	2	2	6	7	5	1
36427.00	1	2	5	3	3	1
36429.00	1	2	4	4	3	1

36431.00	2	2	4	7	4	8

a. Table 2 shows data for 34 individuals and seven variables. The variable labels and values are listed in Appendix 1. Input the data into the SPSS data editor. Print and submit the data file .   (5 marks)

b. Compute a new variable named socio-economic status such that Socio-economic status = (education+fathers education+family income)/3. Print and submit the new data file.   (3 marks)

c. How many females were over 21 years of age?   (1 mark)

d. Construct a bar graph representing the categories of the variable Age.

(5 marks)

e. Construct and print a scatter plot for father's education against family income. On the scatter plot, draw the regression line using ordinary least squares method. Save and print the output.   (5 marks)

Explain the nature of the relationship in (d) above?   (2marks)

f. Calculate and interpret Pearson's product Moment Correlation Coefficient between the variables mother's education and father's education. (3marks)

g. By use of an appropriate test statistic, determine if gender is related to family income at an alpha level of .05.   (3 marks)

h. By use of an appropriate test statistic, determine whether the difference in mean for males and females is statistically significant at an alpha level of .05 (2 tailed).   (3 marks)

Appendix 1.

Variable	Variable label	Values
CaseN	Case number	None
Gender	Gender	1= Male 2= Female
YearSc	Year of study	1= First year 2=Second year
Age	Age in years	1 = 18 2=19 3=20 4=21 5=22-24 6=25-29
FathEdu	Father's education	1 = primary 2= lower vocation 3= lower general secondary 4= middle secondary 5= higher secondary 6= university
MothEdu	Mother's education	1 = primary 2= lower vocation 3= lower general secondary 4= middle secondary 5= higher secondary 6= university
Famic	Family Income	1 = less than Kshs15,000 2= Ksh 15,000-KSh30, 000 3= KSh 31,000-KSh50, 000 4= KSh 51, 000-KShs 80,000 5= KSh 81,000-Kshs 100,000 6= KSh 101,00-KSh120,000 7=KSh 121,000-KSh 150,000 8=KSh 151,000+