RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES

B.Sc. (General) Degree in Applied Sciences
Third Year - Semester II Examination – October/November. 2017

MAT3209 – STATISTICAL COMPUTING USING SAS

Time: Two (02) hours

Answer ALL questions.

You should prepare a text document (**MS-WORD**) including all the necessary outputs, graphs and relevant interpretations. Save the file with the name **XXXX.doc** where **XXXX** representsyour index number.

(E.g.: If the index number is "0001" then the text document should be"0001.doc")

Save the following files, naming as indicated below.

SAS editor as "**XXXXQX.sas**"

Where "**XXXX**" represents your index number and 'X' in 'QX' represents the question number. (E.g.: "**0001Q1.sas**" editor file for question 1.)

You are advised to save all your works regularly to avoid losses of data due to power failures.

1. Consider following set of data.

ID	Gender	PracExam	TheoExam	Assignment
111	M	78	67	87
112	M	90	78	56
113	F	100	98	99
114	M	67	45	87
115	F	35	86	78
116	F	89	46	57
117	F	89	47	68
118	M	70	54	34
119	M	66	45	68
120	F	79	69	89

a) Write a SAS Program to open the data set "**Marks.txt**" and label the variables as ID= Index Number, PracExm = Marks for practical exam, TheoExm = Marks for theory exam, Assignment = Marks of the assignment.

b) Obtain descriptive statistics for numerical variables.

c) Obtain descriptive statistics of PracExm and TheoExm for Male and Female separately.

d) Calculate, $Final\ Marks = \frac{PracExm+TheoExm+Assinment}{3}$

e) Record Grade, if Final Marks<40 then Grade = F, 40<= Final Marks < 55 then Grade = C, 55<= Final Marks < 70 then Grade = B, Final Marks>=70 then Grade= A

(100 marks)

2. Consider the following table.

Name	Bate of Birth	Date of Married	Weight	Height
Saroj	27/Aug/1992	01/Mar/2015	55	150
Mina	10/Dec/1990	10/Nov/2010	47	148
Dinali	11/Mar/1989	07/May/2010	41	152
Bindu	21/Apr/1991	15/May/2016	55	163
Hussain	15/Jun/1988	02/Mar/2015	74	178

a) Write a SAS program to print the above data set. (Use date format as DDMMYYB10.)

b) Sort the data set according to variable **"Height"** and **descending** order.

c) Calculate the person's age at the date of married.

d) Write SAS statement to generate a plot of Height vs. Weight (with "Height" on the vertical axis and "weight" on the horizontal axis.)

(100 marks)

3. We have collected some data from 10 students and coded those data in the following format.

00111347071
00200236560
00310266755
00411427945
00511367163
00601454567
00701299069
00810207855
00900215376
01010489160

Where;

Column	Description	Variable name
1-3	Identification number	id
4	Gender	gender
5	Marital status	marital
6-7	Age	age
8-9	Mid marks	mid
10-11	End marks	end

a) Write necessary SAS statements to create a SAS data set and display it.

b) Rename variable name "Gender" as **"SEX".**

c) Modify your SAS code if Marital status=1 print "single" and Marital status=0 print "married" name new variable as "status".

d) Modify your SAS code if Gender =1 print "male" and Gender =0 print "female" name new variable as "gend". **(100 marks)**

4. Consider the following experiment:

We randomly assign 15 subjects to three treatment groups X, Y and Z (with 5 subjects per treatment). Each of the three groups has received a different method of speed reading instruction. A reading test is given and the number of words per minute is recorded for each subject. The following data are collected:

x	y	z
700	480	500
850	460	550
820	500	480
640	570	600
920	580	610

The null hypothesis is that mean(x) = mean(y) = mean (z). The alternative hypothesis is that the means are not equal. Perform ANOVA for the above experiment. Defining assumptions and interpret your results by words. **(100 marks)**

END