

**UNIVERSITY OF COLOMBO, SRI LANKA
FACULTY OF ARTS**

SECOND YEAR EXAMINATION IN ARTS – SEMESTER II – 2017/2018

SOC 2223 – Social Statistics

Two (02) Hours

Answer Four (04) questions only

Calculators can be used. Graph papers will be provided.

1. 1.1 A frequency distribution of age obtained by a sample of **1000 workers** in a factory is given below.

Age in Years	Frequency
18 – 22	125
23 – 27	75
28 – 32	95
33 – 37	255
38 – 42	300
43 – 47	150
Total	1000

Using the above data calculate the following

- (i) Percentage distribution of age (2.5 Marks)
- (ii) Cumulative percentage distribution of age (2.5 Marks)
- (iii) Mean of the age distribution (05 Marks)
- (iv) Standard Deviation of age distribution (05 Marks)

1.2 Briefly explain the following.

- (i) 'The mean cannot be calculated for nominal data' (2.5 Marks)
- (ii) Convert missing data into valid data using SPSS (2.5 Marks)
- (iii) Recoding nominal data into scale data using SPSS (05 Marks)

P.T.O.

2. A frequency distribution of daily expenditure for food in rupees by a sample of **800 households** is given below

Daily expenditure for food in rupees	Frequency
0 – 199	80
200 – 399	100
400 – 599	20
600 – 799	250
800 – 999	50
1000 – 1199	225
1200 – 1399	75
Total	800

Using the above data calculate the following

- (i) Mode (04 Marks)
- (ii) Median (04 Marks)
- (iii) Mean (04 Marks)
- (iv) Range (04 Marks)
- (v) Standard Deviation (04 Marks)
- (vi) Based on the above measures explain conclusions that you can draw on daily expenditure on food of the sample households. (05 Marks)
3. Unemployment rate and civil disturbances reported for **Five Cities** are given below.

City	Unemployment Rate (X)	Civil Disturbances (Y)
A	22	25
B	20	13
C	15	05
D	10	10
E	09	02

- (i) Construct a scatter plot diagram using the above data (05 Marks)

P.T.O.

- (ii) Calculate the correlation coefficient of X and Y and comment on your result (10 Marks)
- (iii) Find the regression line of Y on X (05 Marks)
- (iv) If the X value is 25, predict the Y value using your regression line of Y on X (05 Marks)
4. Write short notes on any **five (05)** topics given below.
- (i) Data editing and coding (05 Marks)
- (ii) Selecting a simple random sample using SPSS (05 Marks)
- (iii) Advantages of using Syntax Window of SPSS to conduct statistical analysis (05 Marks)
- (iv) Constructing a frequency table for a multiple response question (05 Marks)
- (v) Column and Row percent (05 Marks)
- (vi) Code book (05 Marks)
- (vii) Analysis framework (05 Marks)
5. (i) A correlation coefficient between education (in years) and income (in rupees) by a sample of 50 household heads is 0.6. What can you conclude about the relationship between these two variables? (05 Marks)
- (ii) 'Researchers who engage in quantitative data analysis need to have the correct variables with the right scale to conduct univariate, bivariate and multivariate analysis.' Discuss using relevant examples. (10 Marks)
- (iii) What are the prerequisites necessary to conduct a multiple regression analysis? (05 Marks)
- (iv) What are the main differences between random and non-random sampling methods? (05 Marks)

P.T.O.

6. From a sample of Seven (07), their years of formal education and marks received for an IQ test are given below.

X Education in Years	Y Marks of IQ test
15	40
18	35
20	55
08	70
06	73
12	65
10	47

- (i) Calculate the correlation coefficient of X and Y and comment on your result (10 Marks)
- (ii) Find the regression line of Y on X (10 Marks)
- (ii) Using the above regression line of Y on X, predict the Y value if the X value is 5 (05 Marks)
