



Uva Wellassa University
Faculty of Science and Technology
End Semester Examination- September/ October, 2013



ESS 104-3 Quantitative Reasoning

(ENM)

Part C - Essay Questions

1.
 - a. Distinguish between probability sampling techniques and non-probability sampling techniques.
 - b. A manufacturing company desires to estimate the total number of man-hours lost in a given month, due to accidents among all employees. The company has 132 labourers, 92 technicians and 27 administrators. Two sampling designs are proposed to select a sample of 20 employees from this company.
Draw a random sample of 20 employees using
 - A: simple random sampling method
 - B: stratified sampling method.
 - i. What is the best suitable sampling design? Give reasons.
 - ii. Suggest how this suitable sampling technique could be used to choose the sample of employees.

(15 marks)

2.
 - a. What are the advantages of diagrammatic presentation of data?
 - b. The following table shows the relative contribution to green house gas emission for different activities in year 2000 and 2005.

Activity	Contribution	
	2000	2005
Industry	30%	35%
Commercial Building	5%	8%
Residential Building	10%	8%
Transport	14%	18%
Non-Energy	35%	28%
Miscellaneous	6%	3%

Draw a multiple bar chart for data. Comment on the graph by comparing the activities within a year.

- c. The following table shows the number of days of leave taken by 40 employees during the year 2010.

Class Interval	1-6	7-12	13-18	19-24	25-30
Frequency	7	15	11	6	1

- i. Construct a histogram for the data.
- ii. Calculate the mode number of leaves taken by employees.
- iii. Using the histogram, comment on the shape of the distribution.

(20 marks)

3. Explain two of following methods of data collection highlighting their advantages and disadvantages.
- a. Mailed Questionnaires
 - b. Personal Interview
 - c. Direct Observation
 - d. Secondary Data

(10 marks)