

## SOUTH EASTERN UNIVERSITY OF SRI LANKA

## BACHELOR OF BUSINESS ADMINISTRATION &amp; COMMERCE EXAMINATION – 2005/2006

## FORTH YEAR, SEMESTER – II, APRIL 2007

## MIS 4213 – STATISTICAL ANALYSIS FOR MANAGEMENT

Answer all questions

Time: 04 hours

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1. State whether the following statements are true or false. Justify your answer. (02 Marks each)
- (a) Statistical conclusions are not true for individuals but true on average.
  - (b) Reliable conclusions can be made only when primary data are available.
  - (c) Standard errors of estimates cannot be estimated in situations where non-random sampling is used.
  - (d) Mode is the best measure of central tendency when the data are recorded in ordinal scale.
  - (e) In calculating harmonic mean higher weights are given to smaller values.
  - (f) Non-sampling errors increase with the increase of sample size.
  - (g) Inter quartile range is affected by extreme values in a data set.
  - (h) Spearman rank correlation can only be used with non-numerical data.
  - (i) Standard error of an estimate is a measure of the precision of the estimate.
  - (j) In formulating statistical hypotheses, Type II error is considered to be more serious than Type I error.
2. (a) What are the major steps of data collection? Briefly explain each of them. (05 Marks)
- (b) What is the role of statistics in management? (05 Marks)
- (c) Write down two uses of a scatter plot. (03 Marks)
- (d) Briefly explain the use of coefficient of variation. (03 Marks)
- (e) Briefly explain a situation where systematic sampling is appropriate in selecting a sample. (04 Marks)

3. It is required to test whether the job satisfaction (Highly satisfied, Somewhat satisfied, Neither satisfied nor dissatisfied, Somewhat dissatisfied or Highly dissatisfied) of the employees in a particular organization is associated with the job category of the employee (Labourer, Clerical, Administrative). Six hundred and fifty labourers, 200 clerical staff and 150 administrative officers are working in the organization. Assume that you are provided resources to collect relevant data from 200 employees. Clearly explain how you would conduct a study to achieve the objective mentioned above. Assume that you are provided resources to collect relevant data from 200 employees. Your answer should include the method of selecting the sample, the method of collecting data from the sample, the hypothesis to be tested, the statistical technique to be applied and any assumptions you make in reaching the conclusion.

(30 Marks)

4. Two carpenters Mohamad and Ahamad were employed to make chairs in a particular workshop. The manager of the workshop has recorded total number of chairs made by each person on each day for 7 days. The data are given in Table 1 below.

Table 1: Number of chairs made by each person on each day

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Mohamad	4	6	5	6	5	7	5
Ahamad	1	5	6	9	4	2	11

Calculate suitable measures of central tendency and dispersion for the number of chairs made by each carpenter. What can you conclude from these measures?

(10 Marks)

5. The following information has been collected from 156 third year undergraduates of a particular university.

Sex of the student: 1- male, 2- female

Stay during last 3 years: 1-own home, 2-university hostel, 3-other boarding houses

Weight of the student in kg

The following outputs obtained for the data using Minitab statistical software are given to you.

**Tally for Discrete Variables: Sex, Residence**

Sex	Count	Percent	Residence	Count	Percent
1	88	56.41	1	37	23.72
2	68	43.59	2	77	49.36
N=	156		3	42	26.92
			N=	156	

**Descriptive Statistics: Weight**

Variable	N	N*	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Weight	156	0	51.28	15.15	14.02	40.95	50.17	63.12	89.80

**Descriptive Statistics: Weight**

Variable	Sex	N	N*	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Weight	1	88	0	52.61	14.48	25.39	41.97	52.71	63.92	83.09
	2	68	0	49.55	15.93	14.02	39.13	48.47	61.27	89.80

**Descriptive Statistics: Weight**

Variable	Residence	N	N*	Mean	StDev	Minimum	Q1	Median	Q3
Weight	1	37	0	61.62	12.02	32.78	51.80	63.34	69.46
	2	77	0	47.45	13.30	20.32	38.34	45.62	56.37
	3	42	0	49.17	16.87	14.02	34.09	49.46	59.91

Variable	Residence	Maximum
Weight	1	83.09
	2	79.26
	3	89.80

**Tabulated statistics: Sex, Residence**

Rows: Sex      Columns: Residence

	1	2	3	All
1	63.37	47.74	50.61	52.61
	64.03	44.33	53.65	52.71
	10.21	13.52	14.59	14.48
	23	41	24	88
2	58.75	47.12	47.26	49.55
	59.66	46.74	47.66	48.47
	14.47	13.23	19.80	15.93
	14	36	18	68
All	61.62	47.45	49.17	51.28
	63.34	45.62	49.46	50.17
	12.02	13.30	16.87	15.15
	37	77	42	156

Cell Contents: Weight : Mean  
 Weight : Median  
 Weight : Standard deviation  
 Count

- (a) Write a brief statistical report based on the analysis given above. (15 Marks)
- (b) What additional outputs could have been useful in preparing your report? (05 Marks)

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