

**UNIVERSITY OF JAFFNA, SRI LANKA**  
**ALLIED HEALTH SCIENCES**  
**FIRST YEAR SECOND SEMESTER EXAMINATION – 2013**  
**BASIC STATISTICS - AHSBS1201**

**Answer any TWO questions and NO MORE**  
**Non-Programmable calculator may be used**

**Time: 1 Hour and 30 Minutes**

- 1)
- a) Explain what the terms *quantitative* and *qualitative* mean when referring to variables in a set of data.
- b) State whether each of the following is quantitative or qualitative; also classify each of the variables by continuous, discrete, ordinal or nominal.
- (i) Satisfaction with nursing care received (on a scale of 1–10)
  - (ii) Pain level (mild, moderate, severe)
  - (iii) Reaction time in seconds
  - (iv) Number of patients seen in a day
  - (v) Type of drug use (none, infrequent, moderate, or frequent)
- c) Fifty morbidly obese women were put on a controlled liquid diet for a month. Their weights were recorded at the beginning of the month and at the end of the month, and the difference between the initial weight and the final weight was recorded to the nearest pound. The fifty person's number of pounds lost is as follows:

Value of lost weight	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35
Number of women	5	8	$x$	12	7	$y$	3

The number of morbidly obese women corresponding to value of lost weight groups 10 - 15 and 25 - 30 are missing from the table (Denoted as  $x$  and  $y$ ). However the median is known to be 16.25.

- (i) Find the missing frequencies.
- (ii) Find the mean and mode value of 50 morbidly obese women's lost weight.
- (iii) Another similar experiment was conducted by 60 morbidly obese men and its average lost weight of 60 men is 20, and then finds the average lost weight of 110 people.

Continued....

2)

- a) Define weighted arithmetic mean and median for a set of data.
- b) An index is to be computed using the following weights: resting diastolic pressure, 3; resting heart rate, 2; serum cholesterol, 1. Readings are taken weekly for six weeks and then averaged for the period. A patient's average readings are as follows: diastolic pressure, 82; heart rate, 62; cholesterol, 164. What is the weighted arithmetic mean?

- c) Thirty-five deaths (17 males and 18 females) have been reported during the past year. The ages of the patients at the time of death are as follows: (NB – Newborn)

Males: 68, 82, 33, 44, 73, 59, 57, 51, 02, 62, 47, 46, 48, 70, 80, 37, 59

Females: 45, 82, 52, 68, 76, 59, 59, 55, 36, 65, 66, 52, 84, 63, 46, 24, 80, NB

- (i). Find the mean age at the time of death of
- A. All patients.
  - B. All male patients.
  - C. All female patients.
  - D. All female patients if the newborn is excluded.
  - E. All patients if the newborn is excluded.
- (ii). Draw two stem and leaf diagrams, one for each group of deaths.( if the newborn is excluded)
- (iii). Find the five number summaries for the age in each group and use your results to draw two box plots, one for each group of deaths ( if the newborn is excluded).
- (iv). Use your results in (ii) and (iii) to make a comparison of ages in the two deaths.

Continued....

3)

a) Explain what is meant by range and standard deviation.

b) The blood pressures of patients discharged during the past month with a diagnosis of hypertension were reviewed. Eighty-four cases were found. Only the blood pressures recorded at the time of discharge were to be used in the study. The diastolic pressures (in mm Hg) were as follows:

88, 98, 78, 84, 77, 81, 90, 82, 75, 72, 100, 92,  
85, 92, 77, 84, 77, 82, 92, 88, 74, 80, 95, 90,  
87, 80, 83, 77, 86, 80, 88, 90, 79, 82, 93, 88,  
80, 85, 96, 85, 90, 84, 82, 95, 88, 97, 106, 80,  
94, 92, 88, 96, 90, 88, 86, 84, 90, 98, 102, 88,  
86, 95, 97, 88, 75, 82, 90, 98, 84, 97, 100, 84,  
78, 80, 82, 86, 90, 85, 95, 88, 86, 90, 101, 88.

(i) Determine the range.

(ii) Form a grouped frequency distribution with classes (in mm Hg) as follows:

70 but under 75  
75 but under 80  
80 but under 85  
85 but under 90  
90 but under 95  
95 but under 100  
100 but under 105  
105 but under 110

(iii) Draw a histogram of the grouped frequency distribution.

(iv) Find the mean, median and standard deviation for above grouped data.

(v) State whether or not you think the data follow a symmetric distribution, and give the reason for your answer.