

BACHELOR OF PHARMACY HONOURS – LEVEL 4
BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS – LEVEL 4
BSU4230 – BASIC STATISTICS
CONTINUOUS ASSESSMENT I (NBT I)

REGISTRATION NO:

ANSWER SHEET FOR PART A

Q. No.	(a)	(b)	(c)	(d)
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

REGISTRATION NO:

Part A – Multiple Choice Questions
(20 marks)

Choose the most suitable/best answer and indicate with a 'X' in the answer sheet

Answer the question 1-5 using the description of the study given below.

The Ministry of Education conducted a survey to study the level of addiction to alcohol among young students in Sri Lanka. This survey used a structured questionnaire to collect the data on demographic factors such as gender, age, living province, level of education and monthly income of the family. In addition, students were asked that how many times that they have used alcohol before.

A part of the questionnaire is given below

Questionnaire	
1. Age	<input type="checkbox"/> 11-15
	<input type="checkbox"/> 16-20
	<input type="checkbox"/> 21-25
	<input type="checkbox"/> 26-30
2. Province of living	<input type="checkbox"/> Western
	<input type="checkbox"/> Southern
	<input type="checkbox"/> Sabaragamuwa

1. Select the discrete variable.
 - a) Gender of the student
 - b) Education level of the student
 - c) Monthly income of the family
 - d) Number of times of using alcohol

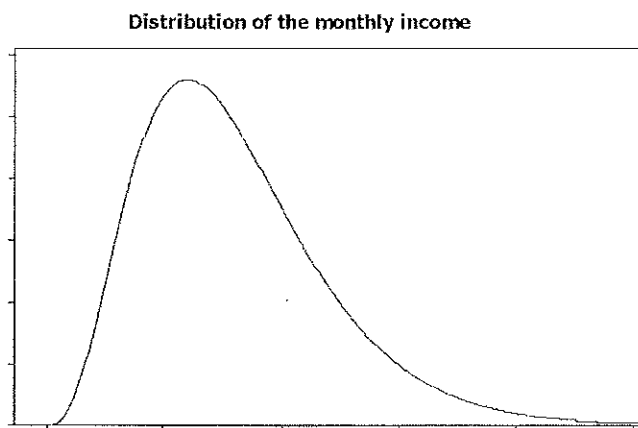
2. According to the collected data, what is the scale of measurement of the "Age" variable?
 - a) Nominal
 - b) Ordinal
 - c) Interval
 - d) Ratio

3. What is the variable type of the "Province of living"?
 - a) Qualitative variable
 - b) Quantitative variable
 - c) Discrete variable
 - d) Continuous variable

4. According to the data collected from the questionnaire, which one of the following is appropriate to represent the "Age" of the student?
 - a) Histogram
 - b) Scatter plot
 - c) Frequency table
 - d) Box and whisker plot

5. They want to analyze the age and gender of the student together. What is the most appropriate graph?
 - a) Compound bar chart
 - b) Scatter plot
 - c) Histogram
 - d) Pie chart

6. The distribution of the monthly income of the family is given below. What is the suitable central tendency measure to represent the monthly income?



- a) Mean
- b) Median
- c) Mode
- d) Variance

7. An experiment was conducted to measure the potato yield under three temperatures (T1, T2, and T3) and three fertilizers (F1, F2, and F3). In each treatment combination (Ti,Fj i,j=1,2,3), five observations were collected under same condition. These measurements are called as,
- placebos
 - treatments
 - replicates
 - controls
8. In some studies, you are required to follow a small scale study prior to the large scale study to identify the weaknesses of the research design. This kind of study is called as,
- case study
 - pilot study
 - observational study
 - experimental study
9. What is the type of error that may not be occur during a census?
- Sampling error
 - Non-sampling error
 - Response bias
 - Non-response bias
10. Which of the following is a characteristic of the normal distribution?
- Mean of the distribution is zero
 - Standard deviation is 1
 - Mean, median mode are equal
 - Shape of the distribution is positively skewed

Part B – Structured Essay Questions

(80 marks)

Write answers in the space provided.

1. A research group conducted a survey to measure the level of satisfaction of the patients regarding the service provided by the different hospitals in the Western province. This survey used a structured questionnaire to measure the service satisfaction and the demographic information of the patients.

The following table illustrates the description of the variables that they collected through the questionnaire.

Variable Name	Description	Code
Hospital	Name of the hospital	1- Hospital A 2- Hospital B 3- Hospital C
Gender	Gender of the patient	1- Male 2- Female
Age	Age of the patient	
Education	Education level of the patient	1- Below O/L 2- A/L 3- Degree 4- Postgraduate
Employment	Employment of the patient	1- Government/ Semi Government 2- Private 3- Not Employed 4- Student
Satisfaction	Score of the satisfaction about the service (0-100)	
Frequency	Number of times of visiting to the hospital	
Purpose	Reason for visit	1- Short period illness 2- Long period illness 3- Non communicable diseases 4- Medical check-ups/ tests

i. Write down the suitable variable name/s for the following variable types.

a) Qualitative variable/s

b) Quantitative variable/s

c) Discrete variable/s

d) Continuous variable/s

e) Nominal variable/s

f) Ordinal variable/s

(16 marks)

ii. Name the appropriate graphical representation (graph) to represent the following cases?

a) Represent the "Gender" wise percentages -

b) Determine the distribution of the "Age" variable -

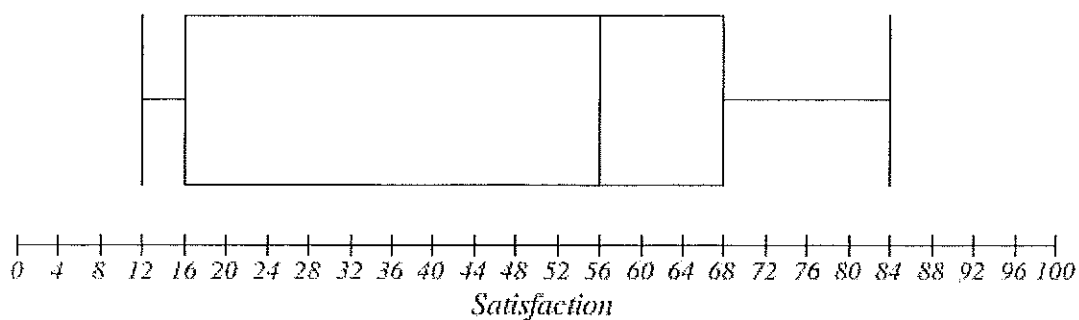
c) Represent the "Gender" wise frequencies in "Education level" -

d) Determine the relationship between "Age" and "Satisfaction" -

(08 marks)

iii. Consider the **Figure 01** and answer the following questions.

Figure 01



- e) What type of a graph is this?
- f) What are the first quartile (Q_1), second quartile (Q_2) and the third quartile (Q_3) of the satisfaction score?
- g) Calculate the inter quartile range of the satisfaction score.
- h) Calculate the range of the satisfaction score.

(16 marks)

2. The weight of randomly selected 20 patients is summarized using **Figure 02**. Consider the **figure 02** to answer the following questions.

Figure 02

Weight of males		Weight of females	
4	4 4	4	5 8 8
5	5 7 8	5	0 2 2 2 4
6	0 1 1 3 5 8	6	0

- i. What is the name of the above plot?
- ii. Arrange the weights of male and female in ascending order.

Male

Female

- iii. Calculate the mean weight of male and female separately.

Male

Female

(14 marks)

iv. Calculate the median weight of male and female separately.

Male

Female

v. Find the mode value of the weight.

Male

Female

vi. Calculate the lower quartile (Q_1) and the upper quartile (Q_3) of the weights of males and females.

(16 marks)

vii. If the standard deviations of weight of males and female are 7.7 kg and 4.3 kg respectively, calculate the co-efficient of variation of the weight of males and females separately.

(10 marks)

Reg. No:.....

Name:.....

Address:.....

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