

THE OPEN UNIVERSITY OF SRI LANKA  
FACULTY OF HEALTH SCIENCES  
DEPARTMENT OF BASIC SCIENCES  
ACADEMIC YEAR 2020/2021 – SEMESTER I



BACHELOR OF SCIENCE HONOURS IN NURSING  
BSU5335 – HEALTH STATISTICS - LEVEL 5  
CONTINUOUS ASSESSMENT I (NBT I)

DURATION: 1  $\frac{1}{2}$  HOUR

DATE: 19<sup>th</sup> NOVEMBER 2021

TIME: 10.00 AM – 11.30 AM

REGISTRATION NO: .....

**IMPORTANT INSTRUCTIONS/ INFORMATIONS TO CANDIDATES**

- This question paper consists of **10 pages** with **10 Multiple Choice Questions (Part A)** and **02 Structured Essay Questions (Part B)**.
- Write your Registration Number in the space provided.
- Answer **ALL** questions
- **Multiple Choice Questions (Part A):** Indicate answers in the answer sheet provided by placing a cross (X) in **INK** in the relevant cage. (answers in pencil will **NOT** be marked)
- **Structured Essay Questions (Part B):** Write answers within the space provided.
- Do not remove any page/part of this question paper from the examination hall.
- Mobile phones and any other electronic equipment are **NOT** allowed. Leave them outside.
- **Non-programmable calculators are allowed.**
- **Please fill the address sheet. (See last page).**

**BACHELOR OF SCIENCE HONOURS IN NURSING**  
**BSU5335 – HEALTH STATISTICS – LEVEL 5**  
**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.**

1. The statistical methods that are used to describe or summarize the collection of data is called,
  - a) Descriptive statistics
  - b) Inferential statistics
  - c) Numerical statistics
  - d) Analytical statistics
  
2. The width of a class in a frequency distribution table is called,
  - a) Class mark
  - b) Class mid-point
  - c) Class size
  - d) Class limit
  
3. When representing the data, the length is used to represent the frequencies in a
  - a) Pie diagram
  - b) Bar diagram
  - c) Pictogram
  - d) Scatter plot
  
4. The coefficient of variation is a measure of
  - a) central tendency
  - b) absolute variability
  - c) relative variability
  - d) center value
  
5. Which one of the following is an example of an ordinal scale?
  - a) Gender
  - b) Exam grades
  - c) Eye color
  - d) Blood type
  
6. The probability of failure in binomial distribution is denoted by
  - a)  $p = q + 1$
  - b)  $p = q - 1$
  - c)  $q = 1 + p$
  - d)  $q = 1 - p$

7. What percentage of area is covered approximately under the normal distribution curve between  $\mu \pm 3\sigma$  (mean  $\pm 3$  standard deviation)?
- a) 68.27%
  - b) 95.45%
  - c) 97.93%
  - d) 99.73%
8. The standard normal distribution
- a) is skewed to the left
  - b) has a mean of zero
  - c) has a standard deviation of two
  - d) is not symmetrical
9. Which one of the following is a probability sampling method?
- a) Quota sampling
  - b) Systematic sampling
  - c) Convenience sampling
  - d) Snowball sampling
10. Which one of the following is a disadvantage of the Simple Random Sampling method?
- a) Less randomness
  - b) More complex
  - c) Potentially too expensive
  - d) Less representative

REGISTRATION NO: .....

---

**Part B –Structured Essay Questions**  
(80 marks)

---

Write the answers in the space provided.

01. A Medical researcher is investigating the effectiveness of a pain killer drug (Drug A). Drug A was given to 6 patients. The time (in minutes) taken to alleviate the pain is given below.

98, 95, 104, 88, 91, 90

a) Find the mean of the data.

(5 Marks)

b) Find the median of the data.

(5 Marks)

c) Comment about the mode of the data.

(3 Marks)

d) Calculate the variance by completing the following table.

$x_i$	$x_i - \bar{x}$	$(x_i - \bar{x})^2$
$\sum_{i=1}^6 (x_i - \bar{x})^2 =$		

*Variance* =

**(18 Marks)**

- e) Obtain the standard deviation.

**(3 Marks)**

- f) Further, another drug (Drug B) was also given to the 6 patients and times to alleviate pain were measured. The Mean and the standard deviation were 92.45 and 6.78, respectively. Compare the variability of Drug A and B using the coefficient of variation.

**(6 Marks)**

02.

a) Briefly explain the difference between the following pair of events.

i. Mutually exclusive event and the independent event.

(6 Marks)

ii. Simple event and compound event.

(6 Marks)

b) Let A and B be the two possible outcomes of an experiment and suppose  $P(A) = 0.2$ ,  $P(B) = 0.5$  and  $P(A \cup B) = 0.6$

i. Find the value of  $P(A \cap B)$ .

(5 Marks)

ii. Show that A and B are independent.

(5 Marks)

iii. Determine the value of  $P(A/B)$ .

(5 Marks)

c) If a random variable  $X$  follows a Poisson distribution with the mean of 2.

$$P(X = x) = \frac{\lambda^x e^{-\lambda}}{x!} \quad ; x = 0, 1, 2, \dots \quad (\text{Standard notations have been used})$$

(The value of  $e = 2.718$ )

i. Find the probability of  $P(X = 3)$ . Show all the steps of your calculations.

(6 Marks)



ii. Find the probability of  $P(X > 0)$ . Show all the steps of your calculations.

**(6 Marks)**

iii. What is the variance of this distribution?

**(1 Marks)**

**Reg. No:**.....

**Name:**.....

**Address:**.....

.....

.....

.....

.....