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THE OPEN UNIVERSITY OF SRI LANKA  
FACULTY OF HEALTH SCIENCES  
DEPARTMENT OF BASIC SCIENCES  
ACADEMIC YEAR 2018/2019 – SEMESTER I



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

DURATION: ONE HOUR

DATE: 15<sup>th</sup> NOVEMBER 2018

TIME: 09.00 AM – 10.00 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.
- **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**

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

REGISTRATION NO: .....

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**Part A – Multiple Choice Questions**

**(20 marks)**

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

1. In Inferential statistics,
  - a) sample data are summarized by using tables or graphs.
  - b) conclusions are generalized to the population based on the data collected from the sample.
  - c) describe how to select a representative group of subjects from the entire population.
  - d) sample data are described, but the inferences about the population are not made.
  
2. Which of the following/s is/are NOT an example for nominal scale variable?
  - a) Gender
  - b) Blood Group (A, B, AB, O)
  - c) Disease Severity (Low, Moderate, Severe)
  - d) Both (b) and (c)
  
3. Which of the following statement/s is/are FALSE?
  - a) The set of all possible outcomes of an experiment is called sample space.
  - b) Subset of a sample space is called an event.
  - c) Mutually exclusive events can occur together.
  - d) Both (a) and (b).
  
4. The probability of an event cannot be,
  - a) equal to zero.
  - b) greater than zero.
  - c) equal to one.
  - d) less than zero.
  
5. Which of the following statement is FALSE about probability distributions?
  - a) Bernoulli distribution and binomial distribution are discrete probability distributions.
  - b) Poisson distribution and normal distribution are continuous probability distributions.
  - c) Binomial distribution is an extension of Bernoulli distribution.
  - d) The Poisson distribution represents the probability of a given number of events occurring in a fixed time interval.
  
6. Which of the following is not a property of binomial distribution?
  - a) Number of trials (n) is fixed.
  - b) There are two outcomes.
  - c) Trials are independent.
  - d) Probability of success varies from trial to trial.

7. Which of the following statement/s is/are TRUE about the Normal distribution?
- a) It is a discrete probability distribution.
  - b) Mean is zero and Standard deviation is 1.
  - c) It is a smooth bell-shaped distribution.
  - d) Both (b) and (c).
8. Any numeric quantity based on the population is called,
- a) statistic
  - b) parameter
  - c) estimate
  - d) estimator
9. Population is first divided into homogenous groups and the sample drawn from each group. This sampling method is called,
- a) simple random sampling.
  - b) stratified sampling.
  - c) cluster sampling.
  - d) systematic sampling.
10. Which of the following/s is/are a probability-based sampling method?
- a) Cluster sampling
  - b) Quota sampling
  - c) Systematic sampling
  - d) Both (a) and (c)

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**Part B –Structured Essay Questions**

(80 marks)

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Write answers in the space provided.

1. Age of 40 patients who were admitted to a certain hospital within one day, are given below.

8, 47, 22, 31, 17, 13, 38, 26, 3, 34, 29, 11, 22, 7, 15, 24, 38, 31, 21, 35, 42, 24, 45, 23, 21, 27, 29, 49, 25, 48, 21, 15, 18, 27, 19, 45, 14, 34, 37, 34

a) Prepare a frequency distribution table with equal class intervals, starting from 0-9.

Age	Frequency
0-9	

(10 marks)

b) Calculate class mid points.

Age	Midpoint
0-9	

(10 marks)

c) Calculate the mean age of the patients.

Age	Frequency ( $f$ )	Midpoint ( $x$ )	$fx$
0-9			

$\Sigma f$   $\Sigma fx$

(16 marks)

d) Calculate the cumulative frequencies by using frequency table in part I.

Age	Frequency	Cumulative Frequency
0-9		

(10 marks)

e) What is the median class?

(04 marks)

f) Calculate the median age. (Standard notations have been used)

$$\text{Median} = L + \frac{\left(\frac{n}{2} - F\right) c}{f}$$

(10 marks)

2.

a) Write down the scale of measurements (Nominal/ Ordinal/ Interval/ Ratio) of these variables.

- i. Intelligence of a student -.....
- ii. Weight of a student -.....
- iii. Education qualification (O/L, A/L, Degree) -.....
- iv. Gender -.....
- v. Temperature -.....

(10 marks)

- b) According to past data, 40% of the dengue patients had died in a certain hospital. A particular researcher has randomly selected five dengue patients from this hospital for his experiment and wishes to know the probability of 3 patients dying out of five randomly selected patients.
- i. What is the probability distribution according to this situation?
  - ii. What is the probability of success according to the distribution in part i?
  - iii. What is the sample size (number of trials)?
  - iv. What is the probability that 3 patients will die out of the 5 randomly selected dengue patients? Clearly show your calculations.

$$P(X = x) = \binom{n}{x} p^x (1 - p)^{n-x} \quad (\text{Standard notations have been used})$$

$$\binom{n}{x} = \frac{n!}{x!(n-x)!}$$

$$n! = n(n - 1)(n - 2) \dots 1$$



**(10 marks)**

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

**Name:**.....

**Address:**.....

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