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UNIVERSITY OF JAFFNA, SRI LANKA  
FACULTY OF ALLIED HEALTH SCIENCES

FIRST YEAR FIRST SEMESTER EXAMINATION IN BPharmHons-2023

PHABS 1131 BASIC STATISTICS

Date: 13.12.2024

Time: 01 Hour

ANSWER ALL TWO (02) QUESTIONS.

1.

1.1 The owner of a large fleet of taxis wishes to estimate the mean fuel consumption for taxis in his current fleet. For each taxi in a random sample of 50 from his current fleet, he calculated the fuel consumption in liters per 100 kilometers.

1.1.1 What is the population of interest and the parameter the owner needs? (05 Marks)

1.1.2 What is the sample and the statistic? (05 Marks)

1.1.3 Describe how the statistic will produce the kind of information the owner wants. (10 Marks)

1.2 Specify the appropriate measures of location for each type of data (Nominal/ Ordinal/ Discrete/ Continuous). (10 Marks)

1.3 In an area, 80 % of the population is identified to be Covid-19 patients. It is also known that among the identified Covid-19 patients 75 % are infected with the new variant, Omicron. What is the probability of a randomly selected person from that area being a Covid-19 patient infected with the new variant, Omicron? (30 Marks)

1.4 A recent survey found that 40% of all people over the age of 62 wear hearing aids. If a random sample of five people over 62 is selected, find these probabilities.

1.4.1 Exactly two people wear hearing aids. (20 Marks)

1.4.2 At least two people wear hearing aids. (20 Marks)

2.

2.1 A company employing 10,000 workers offer deluxe medical coverage (D), standard medical coverage (S), and economy medical coverage (E) to its employees. Of the employees, 30% have D, 60% have S and 10% have E. From past experience, the probability that an employee with D will submit no claims during next year is 0.1. The corresponding probabilities for employees with S and E are 0.4 and 0.7 respectively. If an employee is selected at random,

2.1.1 What is the probability that the selected employee will not submit a claim during next year? (25 Marks)

2.1.2 If a selected employee does not submit any claim during the next year, what is the probability that the employee has D? **(25 Marks)**

2.2 In a certain country the time taken for a common infection to clear up is normally distributed with mean  $\mu$  days and standard deviation 2.6 days. 25% of these infections clear up in less than 7 days.

Find the value of  $\mu$ . **(30 Marks)**

2.3 In another country the standard deviation of the time taken for the infection to clear up is the same as in 2.2, but the mean is 6.5 days. The time taken is normally distributed.

Find the probability that, in a randomly chosen case from this country, the infection takes longer than 6.2 days to clear up. **(20 Marks)**