Question Paper

Exam Date & Time: 27-Nov-2018 (02:00 PM - 05:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST SEMESTER MASTER OF PUBLIC HEALTH DEGREE EXAMINATION - NOVEMBER 2018
SUBJECT: INTRODUCTORY BIOSTATISTICS FOR PUBLIC HEALTH (MPH 603)
(REGULAR)
Tuesday, November 27, 2018 (14.00 - 17.00)

Answer ALL questions.

Marks: 70   **Duration: 180 mins.**

1)	Enumerate the characteristics of nominal and interval scales of measurements with examples. (2.5+2.5 = 5 marks)	(5)

2. **Define the following:**

2A)	Random experiment	(1)
2B)	Random variable	(1)
2C)	Mutually exclusive events	(1)
2D)	Equally likely events	(1)
2E)	Classical definition of probability	(1)

3)	Differentiate rates and proportions with examples. (2.5+2.5 = 5 marks)	(5)

4. The following data give the injury rates per 100,000 worker-hours for a sample of 15 semiconductor firms:
1.4 2.4 3.7 3.1 2.0 1.9 2.5 2.8 2.2 1.7 3.1 4.0 2.2 1.8 2.6
Calculate the values of:

4A)	Sample mean	(1)
4B)	Inter quartile range	(4)
4C)	Coefficient of variation	(5)

5A)	Give the axiomatic definitions of probability. State the additions rule of probability.	(5)
5B)	Suppose the number of accidents occurring weekly on a particular highway follows a Poisson distribution with parameter λ. Suppose the average number of accidents occurring weekly is equal to 1.2. Approximate the probability that there is at least one accident this week.	(5)

6. **Prepare a short note on:**

6A)   Normal distribution and its properties.   (5)

6B)   Geometric mean and Harmonic mean.   (5)

PART - B

Answer all the questions.

7)   In an outbreak situation how do you frame a hypothesis? What are its different forms and (10) what do you do to prove or disprove a hypothesis?
(4+3+3 = 10 marks)

8. **Write short notes on:**

8A)   Importance of person-time in Time Series Analysis.   (5)

8B)   Population attributable risk.   (5)

8C)   Incidence proportion.   (5)

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