

Question Paper

Exam Date & Time: 27-Mar-2021 (02:30 PM - 04:30 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST SEMESTER MASTER IN HOSPITAL ADMINISTRATION DEGREE EXAMINATION - MARCH 2021
SUBJECT: MHA 505 - STATISTICS AND RESEARCH METHODOLOGY
(REPEATER)

Use of non-programmable calculator is allowed.
All questions are compulsory.

Marks: 50

Duration: 120 mins.

SECTION - A

Long answer type questions:

- 1A) What is data? What are the requisites for a data to be reliable? (5)
- 1B) The frequency distribution below provides a summary of how the 50 soft drink purchases are distributed across the five soft drinks. Use an appropriate graphical method to visualize the data. Make appropriate conclusions. (5)

Soft Drink	Frequency
Coke Classic	19
Diet Coke	8
Dr Pepper	5
Pepsi	13
Sprite	5

- 2A) The adjoining data relate to the ages of a group of workers in a hospital. Find the median and mode age of the workers. (5)

Age Group	No. of Workers
20-25	35
25-30	45
30-35	70
35-40	105
40-45	90
45-50	55

- 2B. On the average, two students per hour report for treatment to the first-aid room of a large elementary school. Let X denote number of students reporting for treatment each hour. Use the Poisson table below to answer the following questions.

X	0	1	2	3	4	5	6	7
$P(X \leq x)$	0.135	0.406	0.677	0.857	0.947	0.983	0.995	0.999

- i) What is the probability that during a given hour three students come to the first-aid room for (1)

treatment?

- ii) What is the probability that during a given hour two or fewer students will report to the first-aid room? (1)
- iii) What is the probability that during a given hour between three and five students, inclusive, will report to the first-aid room? (1)
- iv) What is the probability that during a given hour between three and seven students will report to the first-aid room? (1)
- v) What is the probability that during a given hour at most five students will report to the first-aid room? (1)

SECTION - B

3. Short answer type questions:

- 3A) **Differentiate the following with suitable examples:** (5)
 - i) Qualitative and quantitative variables.
 - ii) Descriptive and inferential statistics.
- 3B) **Write short notes on:** (5)
 - i) Systematic Sampling.
 - ii) Cluster Sampling.
- 3C) **Define the following:** (5)
 - i) Significance Level
 - ii) p value
 - iii) Type 1 error
 - iv) Test statistic
 - v) Null hypothesis
- 3D) What are the different steps in writing a report? Explain briefly. (5)
- 3E) With an example explain the importance of sample surveys as compared to complete enumeration. (5)
- 3F) Define arithmetic mean. Give its merits and demerits. (5)

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