

Question Paper

Exam Date & Time: 01-Feb-2021 (02:30 PM - 04:30 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST SEMESTER MASTER IN HOSPITAL ADMINISTRATION DEGREE EXAMINATION - JANUARY/FEBRUARY 2021
SUBJECT: MHA 505 - STATISTICS AND RESEARCH METHODOLOGY
(REGULAR & REPEATER)

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

Marks: 50

Duration: 120 mins.

SECTION - A

Long answer type questions:

1A) Explain in detail the observation method of primary data collection. Give its merits and demerits. List (5) the different types of observation methods.

1B) The following data represents the infant mortality (per 1000 live births) for a sample of 40 districts of India. Construct a histogram for the data. Make appropriate conclusions. (5)

14	21	23	21	16	19	22	25	16	16
24	24	25	19	16	19	18	19	21	12
16	17	18	23	25	20	23	16	20	19
24	26	15	22	24	20	22	24	22	20

2A) For the infant mortality data given, compute the mean and median. (5)

14	21	23	21	16	19	22	25	16	16
24	24	25	19	16	19	18	19	21	12
16	17	18	23	25	20	23	16	20	19
24	26	15	22	24	20	22	24	22	20

2B. Kanjanarat et al. estimate the rate of preventable adverse drug events (ADEs) in hospitals to be 35 percent. Preventable ADEs typically result from inappropriate care or medication errors, which include errors of commission and errors of omission. Suppose that 10 hospital patients experiencing an ADE are chosen at random. Let X denote number of preventable drug events. Using the binomial table given below:

X	0	1	2	3	4	5	6	7
$P(X \leq x)$	0.0135	0.0860	0.2616	0.5138	0.7515	0.9051	0.9740	0.9952

Calculate the probability that:

- i) Exactly seven of those drug events were preventable. (1)
- ii) More than half of those drug events were preventable. (1)
- iii) None of those drug events were preventable. (1)
- iv) Between three and six, inclusive, drug events were preventable. (1)
- v) At most half of those drug events were preventable. (1)

SECTION - B

Short answer type questions:

3A) Define the following: (5)

(i) Variable (ii) Parameter (iii) Statistic (iv) Population (v) Sample

- 3B) Discuss the advantages of sampling over complete enumeration technique. (5)
- 3C) Explain the different types of error in statistical hypothesis testing with suitable examples. (5)
- 3D) What do you understand by statistical hypothesis? Enumerate the rules for stating statistical hypothesis. (5)
- 3E) Distinguish between Research methods and Research methodology. (5)
- 3F) What are the different steps in writing a report? Explain briefly. (5)

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