



Time - 3 Hour

MM-70

The question paper contains 3 printed pages.

Note:

- Kindly attach the question paper with the answer sheet at the time of submission of answer sheet.
- All sections are compulsory.
- Marks are indicated against each question.

Section A

Q. 1. Kindly tick (✓) against the correct option. (4 x 2marks = 8 marks)

i. Time is an example of data with

- Nominal Scale
- Ordinal Scale
- Interval Scale
- Ratio Scale

ii. Mean value of weight of a group of 10 boys was found to be 18.2 kg. Later it was found that weight of one of the boys was wrongly recorded as 2 kg that should have been 20 kg. The true mean weight of the group is –

- 18.2 kg
- 20.2 kg
- 16.4 kg
- 20 kg

iii. If N is total observations and k is number of observations in a class, the angle for this class is given by

- $(360 \times k)/N$
- $(360 \times N)/k$
- $(N \times k)/360$
- $(360)/(N \times k)$

iv. In a 3×4 contingency table, the number of degrees of freedom equals to -

- a. 1
- b. 5
- c. 6
- d. 12

Kindly fill in the blanks for the following (3 x 2marks = 6 marks)

v. Frequencies are used for drawing a histogram.

vi. If the grading of diabetes is classified as "mild", "moderate" and "severe" the scale of measurement used is.....

vii. For a skewed distribution, may not be an appropriate measure of central tendency.

Kindly write True or False against the statement (3 x 2 marks = 6 marks)

viii. For large degrees of freedom, the distribution becomes almost a normal distribution.

ix. Variance is a measure of central tendency.

x. Association between an employee's performance level and his job satisfaction could be tested by doing t-test

Section B

Define any four from the following (4 x 5 marks= 20 marks)

- a. Use of Biostatistics in pharmaceutical field
- b. Levels of measurement (Types of scale)
- c. Describe mean with its merits and demerits
- d. Two types of errors in hypothesis testing
- e. Normal distribution
- f. Steps followed in testing of hypothesis
- g. Chi-squared test

Section C

Attempt any three from the following questions

1. Suppose the Acme Drug Company develops a new drug, designed to prevent colds. The company states that the drug is equally effective for men and women. To test this claim, they choose a simple random sample of 100 women and 200 men from a population of 100,000 volunteers. At the end of the study, 38% of the women caught a cold; and 51% of the men caught a cold. Based on these findings, can we reject the company's claim that the drug is equally effective for men and women? Use a 0.05 level of significance. (10 marks)



2. Systolic blood pressure (B. P.) of a sample of 566 adult males was taken. Mean B. P. was found to be 128.8 mmHg and SD 13.05 mmHg. Construct 95% and 99% confidence interval estimate for the population mean. (10 marks)
3. Systolic blood pressure of 9 normal individuals who had been recumbent for 5 minutes was taken. Then 2 ml of 0.5 per cent solution of hypotensive drug was given and blood pressure recorded again. Did the injection of drug lower the blood pressure? (10 marks)

Serial No.	BP before injection	BP after injection
1.	122	120
2.	121	118
3.	120	115
4.	115	110
5.	126	122
6.	130	130
7.	120	116
8.	125	124
9.	128	125

4. A study was conducted to test if use of herbal tea played any role in prevention of common cold. Data was collected on the number of people who developed cold and those who did not develop cold and data was tabulated in relation to whether they consumed herbal tea or not –

	Herbal tea	
	Consumed	Not consumed
Had cold	12	23
Did not have a cold	34	38

Whether use of herbal tea played any role in prevention of common cold? (10 marks)

5. Five tablets were weighed and then assayed with following results:

Weight (mg)	205	200	202	198	197
Potency (mg)	103	100	101	98	98

- a. Find the regression equation of potency on weight.
b. Predict the potency for a 200-mg tablet

(7 marks)

(3 marks)

