

2023

BMLT 6th Semester Examination

Research Methodology and Medical Statistics

PAPER — XVI(Unit-31)

Full Marks : 40

Time : 2 hours

The figures in the right-hand margin indicate marks.

*Candidates are required to give their answers
in their own words as far as practicable.*

Illustrate the answers wherever necessary.

Answer from **all** the Groups as directed.

GROUP—A

1. Answer *any five* questions : 2×5=10

✓(a) Write the objective of applied research.

✓(b) Define action research.

(c) What is cross-sectional research?

(2)

~~(d)~~ The median and arithmetic mean of a frequency distribution of body heights of a sample are 54.6 cm and 56.7 cm respectively, find out mode.

- ~~(e)~~ Define null hypothesis.
- ~~(f)~~ What is meant by critical t -value?
- (g) What do you mean by the statement "The result is accepted at 5% level of significance."?

GROUP—B

Answer *any four* questions :

5×4=20

- ~~2.~~ Calculate the mean of the following frequency distribution of body weights (kg) : 5

Class Interval	Frequency
51-53	5
54-56	8
57-59	16
60-62	30
63-65	15
66-68	9
69-71	4

(3)

3. Hourly oxygen consumptions (in ml per 100g of body wt.) were found to be as follows in a sample of nine (9) parakeets, respectively before and after exposure to a pesticide.

Individual	1	2	3	4	5	6	7	8	9
Before Pesticide (X_1)	182	157	173	185	175	168	179	159	170
After Pesticide (X_2)	157	122	140	166	138	148	148	130	147

Find whether or not the oxygen consumption is significantly higher before exposure to the pesticide than after exposure to it. Given,

$$t_{0.05(8)} = 1.860, t_{0.01(8)} = 2.896, t_{0.005(8)} = 3.355 \quad 5$$

4. Briefly describe the different steps involved in a research process. 5

5. Write the differences between primary data and secondary data. What do you mean by one-tail and two-tail test? 3+2=5

6. Define hypothesis. Write the steps considered for rejection of H_0 and acceptance of H_a on the basis of statistical analysis. 2+3=5

7. Compute the SD of the following ungrouped data :
Body wt. of 8 persons – 60, 75, 68, 63, 70, 74, 65, 67 5

(4)
GROUP—C

Answer *any one* question : 10×1=10

8. ✓ (i) Write the differences between qualitative research and quantitative research.

(ii) Describe the limitations of questionnaire method in collection of data.

✓ (iii) Write down the assumptions underlying the student's *t*-test. 4+3+3=10

9. From the diagnostic sample analysis, the blood cholesterol of 8 persons given below. The ICMR reference mean value of blood cholesterol is 155 mg/dl. Find out whether your observed mean significantly differ from ICMR mean value or not.

Subject	Blood Cholesterol mg/dl
1	150
2	170
3	168
4	174
5	164
6	160
7	158
8	172

Critical $t_{0.05(7)} = 1.310$

Interpret your results. 8+2=10

