

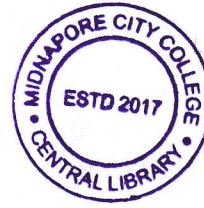
**The West Bengal University of Health Sciences**  
**B.Sc. in Medical Microbiology 5th Semester April - May, 2024**

**Examination**

Subject : Biostatistics

Time : 2 hrs.

*Attempt all questions*



Full Marks : 50

1. Tick the correct answer :

10 x 1

- a) Albumin and globulin ratio is what type of variable?
  - i) Quantitative.
  - ii) Nominal.
  - iii) Ordinal.
  - iv) None of these.
- b) Four samples were drawn from populations. The sample mean can be compared by :
  - i) t-test.
  - ii) Z-test.
  - iii) Chi-square test.
  - iv) None of these.
- c) Purposive sampling includes :
  - i) Non-probability sampling.
  - ii) Probability sampling.
  - iii) Combination sampling.
  - iv) None of the above.
- d) Which one of the following statements is correct?
  - i) 1% level of significance or 95% level of confidence.
  - ii) 5% level of significance or 99% level of confidence.
  - iii) 5% level of significance or 95% level of confidence.
  - iv) 1% level of significance or 98% level of confidence.
- e) How much variable consider for computation of 't- test'?
  - i) 02.
  - ii) 03.
  - iii) 04.
  - iv) None of these.
- f) Which is the example of Finite Population?
  - i) All donors in a city blood bank.
  - ii) All Corona patients in our planet.
  - iii) All locusts exposed to a pesticide.
  - iv) None of the above.
- g) Which are the features of stratified sampling?
  - i) Small and homogeneous population.
  - ii) Small and heterogeneous population.
  - iii) Large and homogeneous population.
  - iv) Large and heterogeneous population.
- h) Identify the following one example for nominal attribute variable :
  - i) HIV positive-negative.
  - ii) Body Weight / Height.
  - iii) Blood groups.
  - iv) None of the above.
- i) Which is the following computation equivalent to  $Q_2$ ?
  - i) Mean.
  - ii) Mode.
  - iii) Decimal.
  - iv) Median.
- j) When cumulative frequency use for the computation of?
  - i) Mean.
  - ii) Median.
  - iii) Mode.
  - iv) None of these.

2. Answer **any four** of the following questions :

4 x 2

- a) Define Bio-statistics.
- b) Two examples of derived and quantitative variables.
- c) How do you compute cumulative frequency?
- d) What is the SPSS software?
- e) Reference values are what type of statistical measure for quality control and why?
- f) Write the computation formula of variance for grouped data.

3. Answer **any four** of the following questions :

4 x 4

- a) Compute the mean and mode of the following FBS(mg/dl) scores :
 

Class intervals:	51-53	54-56	57-59	60-62	63-65	66-68	69-71
Frequencies:	5	7	14	28	15	8	3
- b) Write the uses of any one statistical software for pathological data analysis.
- c) How do you compute standard error and standard deviation(s) for grouped data with suitable example?

2+2

**P. T. O.**



- d) Classify with gradation of correlation values.
- e) Why ANOVA is powerful than t-test?
- f) Write the computational formulae of  $SS_t$ ,  $SS_b$ ,  $SS_w$  and F values for three groups scores.

4. Answer **any two** of the following questions :

2 x 8

- a) Write the different assumption of coefficient of correlation. Compute the Spearman correlation of coefficient from the following scores of variables and interpret whether significant or not.

Blood sugar(gm/dl): 110, 120, 130, 150 110, 140, 130, 110, 180

Serum insulin ( mlu/L): 10, 20, 45, 50, 15, 50, 30, 20, 60

Critical  $t_{0.02(9)}= 2.821$ ,  $t_{0.02(8)}= 2.896$ ,  $t_{0.02(7)}= 2.992$ ,  $t_{0.05(9)}= 2.262$

3+5

- b) Distinguish between unpaired and paired t-test. How to compute 't' value from the following pair scores of hemoglobin percentage (gm%) of 9 adolescent girls before and after iron tablet supplementation.

2+6

Hb% before  $Fe^+$  Supple: 08, 10, 09, 10, 09, 08, 11, 10, 12

Hb% after  $Fe^+$  Supple: 14, 10, 12, 13, 12, 10, 13, 11, 15

- c) Differentiate between probability and non-probability sampling with examples. Write the assumptions of linear regression. How do you use the computation of standard deviation by MS-excel or other software package?

3+2+3