

Roll No.

Total No. of Pages : 02

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B.Tech.(BT) (2012 to 2017) (Sem.-4)

BIostatistics

Subject Code : BTBT-401

M.Code : 55084

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A**1. Write briefly :**

- a) Polygon curves
- b) Standard deviation
- c) Skewness
- d) Geometric mean
- e) Shanon-Weaver index
- f) Bayes' theorem
- g) Null hypothesis
- h) Spearman rank correlation
- i) Paired 't' test
- j) Contingency table

SECTION-B

2. Briefly describe the probability laws with suitable examples.
3. What is Poisson distribution? Emergency hospital admissions in Japan with heart diseases are found to follow Poisson distribution. An investigation showed that an average there are four admissions per day. Find the probability that exactly three emergency admissions will occur in a given day.

4. The Birth and death rates of five countries are given below. Calculate the correlation coefficient between birth and death rates

Details/countries	1	2	3	4	5
Birth Rate (x)	30	41	13	15	11
Death Rate (y)	11	15	10	9	7

5. What is normal curve? Briefly describe its importance and distributions of variables in a normal distribution curve.
6. The mean birth weight and the standard deviation of high socioeconomic group is 2.91 ± 0.27 (n=15) and low socioeconomic group is 2.26 ± 0.22 (n=10). Test whether the mean difference in birth weight is significant between the socioeconomic groups.

SECTION-C

7. The following scores represent a nurse's assessment (X) and a physician's assessment (Y) of the condition of 10 patients at time of admission to a trauma center. Calculate the regression equation of 'Y' on 'X' and 'X' on 'Y' and correlation coefficient.

Subjects	1	2	3	4	5	6	7	8	9	10
X	17	13	18	15	11	12	8	4	7	2
Y	23	19	18	17	14	11	10	6	6	4

8. What is Chi square test? Briefly mention its importance. Suppose you conducted a drug trial on a group of animals and you hypothesized that the animals receiving the drug would show increased heart rates compared to those that did not receive the drug. Is there a relationship between the drug and heart rates? Use χ^2 test.

	Heart Rate Increased	No Heart Rate Increase	Total
Treated	36	14	50
Not treated	30	25	55
Total	66	39	105

9. Briefly mention the importance of one-way ANOVA. An experiment was conducted to test the effect of 4 different treatments to increase mental ability of children. Test whether there is any significance among the treatments using one-way ANOVA.

Treatment 1	Treatment 2	Treatment 3	Treatment 4
15	12	10	14
20	17	15	20
16	11	12	16
19	18	14	18
19	16	14	13

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student..