

Roll No.

Total No. of Pages : 02

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B.Tech.(BT) (2018 Batch) (Sem.-3)

BIOSTATISTICS

Subject Code : BTBT301-18

M.Code : 76945

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. Answer briefly :

- What is data on nominal scale?
- Differentiate between parameters and statistics.
- Define Geometric Mean.
- What is range of a data?
- ${}_8C_5 = \dots\dots\dots$
- Define Skewness of a distribution.
- Differentiate between type I and type II errors in statistical hypothesis testing.
- What is Wilcoxon paired sample test?
- What is the application of two factors ANOVA?
- What are regression coefficient 'b' and 'a' in simple linear regression equations?

SECTION-B

- What do you understand by random sampling? What is its importance in statistical hypothesis testing?
- Calculate the standard deviation of the following data :
8, 5, 4, 6, 11, 14.

Also write how standard deviation and variance are related?

4. If 51% boys and 49% girls are born in child births, what is the probability of getting two girls when number of pregnancies are two? Also determine the probabilities of getting one boy and one girl when number of pregnancies are two.
5. If in a Poisson distribution, $\mu = 1.5$, what is $P(0)$? What is $P(4)$?
6. The offspring of 12 families were studied in respect of albinotic children. According to their phenotype 40 of these children were distributed as follows :

Phenotype	aa	ab	bb
No. of children	2	16	22

Perform chi-square test to find if the distribution differs significantly from an expected distribution in 1:8: 16 ratio in the same order.

SECTION-C

7. Find out Pearson coefficient of correlation between heights (in inches) of fathers and their adult sons. The data is as following :

Adult son (y)	68	66	68	65	69	66	68	65	71	67	68	70
Father (x)	65	63	67	64	68	62	70	66	68	67	69	71

8. Using following data, perform two sample hypothesis test to test the null hypothesis that male and female turtles have the same mean serum cholesterol concentrations (mg/100 ml).

Male	244	248	236	232	251	245	254	256
Female	232	240	244	244	234	230	226	

9. An entomologist is studying the vertical distribution of a fly species in a deciduous forest and obtains five collections of the flies from each of three different vegetation layers : herb, shrub and tree. Perform Kruskal-Wallis test to test the null hypothesis that abundance of the flies is same in all three vegetation layers. The data consisting of the number of flies/m³ of foliage is as following :

Herbs	14	12.1	9.6	8.2	10.2
Shrubs	8.4	5.1	5.5	6.6	6.3
Trees	6.9	7.3	5.8	4.1	5.4

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.