Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

M.Sc.(BT) (2011 & Onwards) (Sem.–1)

BIOSTATISTICS AND COMPUTER APPLICATIONS

Subject Code : MSBT-103

Paper ID : [F0252]

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

Q1) Answer briefly :

a) Find the empirical relation between the mean, median and mode.

b) What is the standard deviation? Explain its superiority over mean.

c) The mean and variance of binomial distribution are 4 and $\frac{4}{3}$ respectively. Find $P(X \geq 1.)$

d) Define random sample with example.

e) State two applications of computer in biostatistics

f) Define correlation. What are the various methods of studying correlation?

g) State the basic assumptions of the analysis of variance.

h) Write short note on F-ratio and its interpretation.

i) Define various kinds of residuals with examples.

j) Explain completely randomized block design.

SECTION-B

Q2) Calculate mean from the following data :

Marks :	0-10	10-20	20-30	30-40	40-50	50-60
No of students :	5	7	8	10	5	5

Q3) The lines of regression are given by $X + 2Y = 5$ and $2X + 3Y = 8$ and $\sigma_y^2 = 4$ .calculate the values of $\overline{X}, \overline{Y}$, r and σ_X .(symbols have their usual meanings)

Q4) With the usual notation, find p for a binomial variate X,

if $n = 6$ and $9P(X = 4) = P(X = 2)$

Q5) Show how you would use Student's t -test to decide whether the two sets of observations

17, 27, 18, 25, 27, 29, 27, 23, 17

And 16, 16, 20, 16, 20, 17, 15, 21 indicates samples drawn from the same universe.

Q6) Explain least square, randomization and replication with examples.

SECTION-C

Q7) a) The mean of 10 numbers is 7 and mean of 15 other numbers is 12. Find the mean of 25 numbers taken together.

b) Calculate median from the following data :

Marks:	0-5	5-10	10-15	15-20	20-25	25-30	30-35
No of students:	4	6	10	16	12	8	4

Q 8) Explain the chief characteristics of normal distribution and normal probability curve. If X is $N(1,4)$. Find the probability $P(1 < X^2 < 9)$.

Q9) A die is thrown 60 times with following results :

Face :	1	2	3	4	5	6
Frequency :	8	7	12	8	14	11

Test at 5% level of significance if the die is honest, assuming that $P(\chi^2 > 11.1) = 0.05$ with 5 degree of freedom.