Registration no:

B.Tech
HSSM3304

5th Semester Regular / Back Examination 2016-17
BIOSTATISTICS
BRANCH: BIOTECHNOLOGY
Time: 3 Hours
Max Marks: 70
Q.CODE: Y379
Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1   **Answer the following questions:**   **(2 x 10)**
   a) Define skewness.
   b) Define Hypothesis Testing.
   c) Explain properties of Normal Curve.
   d) What is co-efficient of variation?
   e) Define Estimation and its types.
   f) Describe Null Hypothesis, alternate hypothesis.
   g) Properties of coefficient of correlation.
   h) What is a dependent event?
   i) What is continuous random variable?
   j) Write three types of probability distribution.

Q2   What is classification? Explain different basis of classification with suitable examples.   **(2+8)**

Q3 **a)** Calculate the standard deviation for the following frequency distribution of workers in a factory.   **(5)**

Wages	15	20	24	28	30	32	34	38
No. of workers	25	47	53	90	75	95	30	25

   b) In a shipment of 20 computers 3 are defective. Three computers are randomly selected and tested. What is the probability that all three are defective, if the first and second are not replaced after being tested?   **(5)**

Q4 **a)** Define Mean, Median and Mode and give their relationship. Give suitable examples.   **(5)**
   b) The marks obtained in a certain examination follow normal distribution with mean 45 and s.d. 10. If 1000 students appeared at the examination, calculate the number of students scoring (i) less than 40 marks and (ii) more than 60 marks.   **(5)**

Q5 **a)** A factory has two Machines A and B. Past records show that machine A produces 40% of the total output and Machine B the remaining 60%. Machine A produces 3% defective articles and Machine B produces 2 % defective item. An item is drawn at random and found to be defective. what is the probability that it was produced by machine A. **(5)**

b) The following figures represent the height of a group of student in inches.
64,66,65,64,63,65,60,64,63,61,63,62,61
Find out the mean median and mode. **(5)**

Q6 **a)** Define simple random sample. Explain simple random sampling without replacement with suitable example. **(5)**

b) Random sample of 400 men and 600 women were asked whether they would like to have a school near their residence. 200 men and 350 women were in favour of the proposal. Test the hypothesis that the proportions of men and women in favour of the proposal are the same at 5% level of significance. **(5)**

Q7 Differentiate between correlation and regression. In a partially destroyed Lab record , only the lines of regression of y on x and x on y are available as $4x - 5y + 33 = 0$ and $20x - 9y = 107$ respectively. Calculate $\overline{x}$, $\overline{y}$ and the co-efficient of correlation between x and y. **(10)**

Q8 **Write short answer on any TWO:** **(5 x 2)**
a) Kurtosis
b) Random experiment
c) Chi-square test
d) Co-efficient of variation