equation. Predict wife's age, when husband's age is 33 years. (8)

Wife's age (years)	18	20	22	23	27	28	30
Husband's age (years)	23	25	27	30	32	31	35

[This question paper contains 8 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1187

Unique Paper Code : 32167502

Name of the Paper : Biostatistics

Name of the Course : **Botany : DSE for Hons**

Semester : V

Duration : 3 Hours Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any **five** questions in all.
3. Question number **one** is compulsory
4. Nonscientific calculator allowed, statistical tables provided by the college may be used if required.

1. (a) Define **(Any Five)** : (1×5=5)

(i) Ordinal scale of measurement

(ii) Descriptive statistics

(iii) Relative frequency

(iv) Bivariate analysis

(v) Parametric test

(vi) Class interval

(b) Fill in the blanks **(Any Five)** : (1×5=5)

(i) Measure of asymmetry in a distribution is given by _____ .

(ii) In _____, numerical data is depicted on the geographical map.

(iii) Chance of rejecting a true null hypothesis is known as _____ .

(iv _____ is the measure of central tendency, which can be located graphically through ogive / cumulative frequency curve.

(c) In a city, the accidents were reported below on the basis of days in week. Calculate if number of accidents are significantly different from each other at 5% level of significance. (5)

Days	Mon	Tue	Wed	Thu	Fri	Sat	Sun
No. of accidents	15	17	12	10	14	20	17

6. (a) Differentiate between Karl Pearson's and Spearman's rank correlation coefficient. Calculate Spearman's rank correlation coefficient (p) for ranks obtained by ten students in mathematics and statistics as tabulated below : (7)

Mathematics	7	8	2	1	9	9	12	11	4	10	6	5
Statistics	6	4	1	3	11	12	12	10	5	9	7	8

(b) Enumerate similarities between correlation and regression. From the following data (of age of husband and wife) calculate the regression

No. of fruit/plant (x)	7	8	9	10	11	12	13	14	15	16	17
Frequency	47	54	58	60	66	64	55	40	69	53	45

5. (a) Explain null and alternative hypothesis. Lay down hypotheses and perform appropriate hypothesis test for the following data to find out whether the goat fed with two different diets (A and B) exhibit significant different in their weights (at 5% level of significance). (6)

Weight of goats fed with diet A (kgs)	25	32	30	32	24	14	32	-	-	-
Weight of goat fed with diet B (kgs)	24	34	22	30	42	31	40	30	32	35

(b) A fertilizer packing machine claims to deliver 12 kg in each of the packing bags. After packing, ten random bags were weighed by a machine-inspector and found their weights as 11, 14, 13, 12, 13, 12, 13, 14, 12, 11 kg. Find out whether the machine could be declared defective at 5% level of significance. (4)

(v) Probability of rare events (e.g. chance of happening of accident on road) will fit best to the _____ distribution.

(vi) _____ is the most suitable measure of central tendency for speed, ratio, and percentage.

(c) Match the following : (1×5=5)

(i) Q_2	(a) Carl Gauss
(ii) Leaf size	(b) F-test
(iii) Hospital records	(c) Continuous variable
(iv) Significance of difference between two variances	(d) Median
(v) Normal Distribution	(e) Secondary data

2. Discuss the following **(Any Three) :** (5×3=15)

(a) Describe application of statistics in different

fields of biology. What are major limitations of biostatistics?

(b) Define tabulation of data and mention its merits. Describe different types of tables with the help of suitable examples.

(c) Enumerate important features of bar diagram. Explain various types of bar diagram with the help of suitable examples.

(d) Describe primary data. Explain questionnaire and interview-based method of data collection.

3. Differentiate between the following : (3×5=15)

(a) Quartile deviation and standard deviation

(b) Cluster sampling and quota sampling

(c) Interval and ratio scale

(d) Diagrammatic and Graphical presentation of data

(e) Chronological and geographical data

4. (a) Prepare frequency polygon from the following data. (3)

Class Interval	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60
Frequency	6	11	17	9	4

(b) What is coefficient of variation? Price of rice and bajra in different years is given below. Find out which grain has more stable price. (5)

Years	2018	2019	2020	2021	2022
Rice	20	22	19	23	16
Bajra	10	20	18	12	15

(c) Define mode, and enumerate its merits and demerits. Calculate mode for the following data applying grouping method. (7)