



বিদ্যাসাগর বিশ্ববিদ্যালয়

VIDYASAGAR UNIVERSITY

2nd Semester Examination 2022

B.F.Sc.

PAPER—BFSC-205

STATISTICAL METHODS

Full Marks : 50

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

1. Answer any *ten* questions. 10×2
- (a) What is pie diagram? State its significance.
- (b) Write down relation among mean, median and mode.
- (c) The lowest and highest wing length scores of a sample of fish fry are 20 mm and 46 mm respectively. Find out the range.
- (d) Define frequency and cumulative frequency with example.

- (e) What is frequency polygon?
- (f) Compute the mean of the following inter orbital width scores (mm) of a sample of fish 12.8, 11.7, 12.3, 10.8, 12.5, 11.4, 12.5, 10.9, 11.6, 11.7.
- (g) Find out the median for the following reflex knee jerk strengths (in degree of arc) of a sample of athletes.
- 19, 21, 22, 26, 28, 30, 31, 35, 35, 37
- (h) Standard deviation = 9.23 and mean = 173. Calculate variance and coefficient of variance.
- (i) What is perfect negative correlation?
- (j) Find out the modal value from the given data —
- 2, 3, 1, 5, 7, 3, 5, 8, 9, 3, 6, 2, 1, 3, 5, 6, 7, 8, 3, 4.
- (k) What is histogram?
- (l) What is Yate's correction?
- (m) What is conditional probability?
- (n) If the largest value is 'L' and the smallest value is 'S', then calculate the coefficient of range.
- (o) What is the probability of throwing a die once and rolling either a three or four?

2. Answer any six questions.

6×5

- (a) In a cross between tall and dwarf garden pea plants. 350 tall and 110 dwarf pea plant and were obtained in F_2 . Test the goodness of fit of these data to a 3 : 1 ratio, using the χ^2 test considering probability at 5% level. (df = 1, table value = 3.84)
- (b) Define variance and coefficient of variation. Why SD considered to be most reliable measures of dispersion? 2+3
- (c) How to interpret the results from the correlation co-efficient?
- (d) From field random sampling the length (cm) of 13 fishes are obtained. These are 161, 183, 177, 157, 181, 176, 180, 162, 163, 174, 179, 169, 187. Calculate the mean deviation and standard deviation. 5
- (e) Briefly explain the characteristics of mean. What are the merits and demerits of the mean? 2+3
- (f) Followings are the ranks obtained by 10 students in 2 subjects, Biostatistics and Biochemistry. To what extent the knowledge of the students in 2 subjects are related? 5

<i>Serial No. –</i>	1	2	3	4	5	6	7	8	9	10
<i>Biostat(Rank) –</i>	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
<i>Biochemistry(Rank)</i>	2nd	4th	1st	5th	3rd	9th	7th	10th	6th	8th

- (g) What are the properties of skewed distributions? What is the formula of Pearson's first coefficient of skewness? 3+2

(h) Briefly discuss the application of statistics in Fisheries science.

(i) The three varieties of weeds (A, B and C) were grown in four plots each. The following table shows the yields in variety. 5

A	B	C
8	7	2
4	5	5
6	5	4
7	3	4

Calculate whether there is significant difference between the yields of weeds or not $[F_{(2,9)0.05} = 4.26]$

(j) Compute the mean and SD of body length (cm) in the following distribution :

<i>Class Intervals:</i>	156–160	161–165	166–170	171–175
<i>Frequency:</i>	4	14	25	17