



WEST BENGAL STATE UNIVERSITY  
B.Sc. Honours 6th Semester Examination, 2022



**BOTADSE06T-BOTANY (DSE3/4)**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.  
Candidates should answer in their own words and adhere to the word limit as practicable.  
All symbols are of usual significance.*

1. Answer the following questions briefly: 1×16 =16
- (a) Differentiate between primary data and secondary data.
  - (b) Why is standard deviation also known as root mean square deviation?
  - (c) If the arithmetic mean of  $x$ ,  $x+3$ ,  $x+6$ ,  $x+9$  and  $x+12$  is 10, what is the value of  $x$ ?
  - (d) How does an attribute differ from a parameter?
  - (e) What do you mean by level of significance?
  - (f) If the mode and median coincide, then what will be the shape of a normal curve?
  - (g) Chi-square test value \_\_\_\_\_ with the increase in the degree of freedom (decreases / increases ).
  - (h) Write one difference between alternative hypothesis and null hypothesis.
  - (i) Find the median of the first ten prime numbers.
  - (j) Find the mean of the first 10 multiples of 3.
  - (k) What do you mean by sampling error?
  - (l) Work out the second quartile for the given series of 10, 12, 13, 15, 17, 19, 21 and 27.
  - (m) If in a calculation, there is 3 degree of freedom, write the number of classes present there.
  - (n) Define co-efficient of variation.
  - (o) What are the different types of correlation present between two sets of variable?
  - (p) The mean of the number 6,  $y$ , 7,  $x$ , 14 is 8. Express  $y$  value in terms of  $x$ .
2. Answer any **eight** questions from the following: 3×8 = 24
- (a) "Arithmetic mean is the best measure of the central tendency and is widely used". Comment on this statement and give reasons in support of your view.
  - (b) With the help of a flowchart, explain the different steps involved in performing a student 't' test.

- (c) If the mean of the following distribution is 24, find the value of 'a'.

0-10	10-20	20-30	30-40	40-50
7	a	8	10	5

- (d) Given two lines of regression
- $x + 3y = 11$
- and
- $2x + y = 7$
- . Find the coefficient of correlation between
- $x$
- and
- $y$
- .

- (e) The mean height of 8 plants is 152 cm. Two more plants of height 143 cm and 156 cm are included later in the group. What is the new mean height of the plant?

- (f) The weight of 10 students are given below in kg:

39, 43, 36, 38, 46, 51, 33, 44, 44, 43. Find the mode of this data. Is there more than 1 mode? If yes, why?

2+1

- (g) From the following two equations, find out the mean value of the variable
- $x$
- and
- $y$
- ; if we assume
- $x = \bar{x}$
- and
- $y = \bar{y}$

$$2x + 5y - 4 = 0 \text{ and } x + 7y + 6 = 0.$$

- (h) The following results were obtained in an experiment involving shape of the seeds and the colour of pods as follows:

Round yellow = 317, round green = 109, wrinkled yellow = 102, wrinkled green = 32. Test whether the ratio of 9:3:3:1 is maintained or not.

[Table value at 5% level of significance is 7.81]

- (i) What do you understand by the term frequency distribution? Define frequency curve and frequency polygon.

1+1+1

- (j) Find the value of
- $f_1$
- and
- $f_2$
- in the following frequency distribution table, if
- $n = 100$
- and the median is 32.

0-10	10-20	20-30	30-40	40-50	50-60
10	$f_1$	25	30	$f_2$	10

- (k) How population is defined in a biometrical analysis? Which is the most widely used measure of dispersion and why?

1+2

- (l) If each of the observation
- $x_1, x_2, x_3, \dots, x_n$
- is increased by 'a', where 'a' is a negative or positive number, show that the variance remains unchanged.

**N.B. :** Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.

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