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: $1 \times 16 = 16$

    (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: $3 \times 8 = 24$

    (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: 2+1
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?

(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   1+1+1
curve and frequency polygon.

(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   1+2
used measure of dispersion and why?

(l) If each of the observation x_1, x_2, x_3 …… 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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