

Faculty of Cosmetic Technology
M.Tech. (Cosmetics Technology) Semester—I Examination
BIostatistics
(Common for All Branches)
Paper—1T4

Time : Three Hours]

[Maximum Marks : 40

INSTRUCTIONS TO CANDIDATES

- (1) All questions carry equal marks.
- (2) Answer **FOUR** questions.
- (3) Use of pen Blue/Black ink/refill only for writing the answer book.

1. (a) Perform a two way Anova on the data given below :

Plot of Land	Treatment			
	A	B	C	D
I	38	40	41	39
II	45	42	49	36
III	40	38	42	42

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- (b) Explain the various uses of χ^2 -test.

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2. (a) If the regression equations of two variables x and y are :

$$x = 0.7 y + 5.2 \quad \text{and} \quad y = 0.3 x + 2.8$$

Find :

- (i) Mean of x's
- (ii) Mean of y's
- (iii) Coefficient of correlation between x and y.

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- (b) Write a short note on "Importance of student's t-distribution.

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3. (a) The following data is collected of the ages of a group of Pvt. Company employees. Calculate the mean and standard-deviation :

Age	No. of Employees
20—25	171
25—30	111
30—35	81
35—40	46
40—45	41
45—50	31
50—55	36

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- (b) Explain the difference between parametric and non-parametric test.

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4. (a) Explain measure of central tendency and find the average marks of the Cosmetic course students from the following data.

Marks	No. of Students
Below 10	5
Below 20	9
Below 30	15
Below 40	19
Below 50	25

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- (b) Write the properties of regression coefficient and lines.

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5. (a) Find covariance and hence find the Coefficient of correlation from the following data. Also discuss the nature of correlation :

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x_i : 2 3 4 5 6

f_i : 1 2 3 4 5

- (b) Write a note on "Analysis of variance technique".

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6. (a) Find the Karl Pearson's Coefficient of Skewness from the following data :

Class-Interval	Frequency
0—10	2
10—20	3
20—30	5
30—40	15
40—50	12
50—60	10
60—70	8

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- (b) Explain "Skewness and Kurtosis".

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