



Avinashilingam Institute for Home Science and Higher Education for Women
 (Deemed to be University Estd. u/s 3 of UGC Act 1956, Category A by MHRD)
 Re-accredited with A++ Grade by NAAC. CGPA 3.65/4, Category I by UGC
 Coimbatore - 641 043, Tamil Nadu, India

Continuous Internal Assessment Test - II, October -2025

Class: I UG
Major: Mathematics

Time: 2hrs
Max. Marks: 60

Generic Elective
25BECGE4 - Statistics with SPSS / R / Python

Course Outcome:

1. Have knowledge on the methods of data collection and tabulation
2. Be familiar about different forms of data visualization.
3. Expose the students to the methods of calculating averages and dispersions.
4. Develop skills in the use of simple multivariate techniques.
5. Equip the students to apply techniques in solving business problems.

Part – A

Choose the correct Answer

6 * 1 = 6

1. In hypothesis testing, a Type II error occurs when **CO5K2**
 - a) The null hypothesis is not rejected when the null hypothesis is true.
 - b) The null hypothesis is rejected when the null hypothesis is true.
 - c) The null hypothesis is not rejected when the alternative hypothesis is true.
 - d) The null hypothesis is rejected when the alternative hypothesis is true
2. The technique of ANOVA was developed by? **CO4K1**
 - a) Frank Wilcoxon b) Karl Pearson c) R A Fisher d) Kolmogrov
3. What does ANOVA stand for? **CO4K2**
 - a) Analysis of Numerical Observations and Values b) Analysis of Normal Observed Variance
 - c) Analysis of Variance d) Applied Norms of Variable Assessment
4. When the values of two variables move in the same direction, correlation is said to be **CO4K1**
 - a) Linear b) Non-linear c) Positive d) Negative
5. Coefficient of correlation lies between? **CO4K2**
 - a) 0 and +1 b) 0 and -1 c) -1 and +1 d) - 3 and +3
6. A process by which we estimate the value of dependent variable on the basis of one or more independent variables is called _____? **CO4K2**
 - a) Correlation b) Regression c) Residual d) Slope

Part - B

Answer the following questions

3 * 6 = 18

- 7a. Explain the conditions for applying Chi square test? **CO4K2**
(or)
- 7b. Illustrate the various types of correlation **CO4K2**
- 8a. Explain the properties, uses and limitations of correlation coefficient **CO4K3**
(or)
- 8b. Depict the concurrent deviation method with its merits and demerits **CO4K3**
- 9a. Distinguish between correlation and regression **CO5K3**
(or)
- 9b. Describe the uses, assumptions and properties of regression coefficient **CO5K3**

Part – C

Answer the following questions

3 * 12 = 36

- 10a. The marks scored by students in a class are given; test whether there is an association between the marks scored and gender using the Chi-square in SPSS/R/Python **CO4K4**

Gender (Male 1 ; Female : 2)															
	1	2	1	2	1	1	1	2	1	1	2	1	1	2	1
Marks scored	60	52	40	60	60	69	62	40	55	69	56	54	62	59	50

(or)

- 10b. A researcher obtained randomly selected sales data from four sales representative's selling their products across four cities. The data arranges concerning sales representatives and the cities were given below. Perform Two- way ANOVA in SPSS/R/Python to examine whether there exists a significant difference in average sales of four different sales representatives and a significant difference in average sales in four different cities. **CO5K4**

	Sales representatives			
Cities	Rep 1	Rep 2	Rep 3	Rep 4
City 1	17	12	16	14
City 2	21	22	25	17
City 3	20	13	17	11
City 4	23	21	32	35

- 11a. The following are the ranks obtained by 10 students in Statistics and Mathematics. Find to what extent is the knowledge of students in the two subjects related? **CO4K4**

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

(or)

- 11b. Calculate coefficient of correlation by the method of concurrent deviation from the following data. **CO5K4**

X	85	87	63	49	84	95	103	100	85	115
Y	20	23	19	21	25	25	28	27	26	30

- 12a. Obtain the two lines of regression in SPSS/R/Python from the data given below **CO5K4**

X	1	2	3	4	5	6	7	8	9	10
Y	9	8	10	12	11	13	14	16	15	20

(or)

- 12b. Find the two regression equations from the following data. Estimate the value of Y when the value of x is 65? **CO4K4**

X	57	58	59	60	61	62	64
Y	77	78	75	82	82	79	81