22TDCSTPTN / 22TDCSTPT

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

PG DEGREE EXAMINATION DECEMBER 2025
(Third Semester)

TRANS DISCIPLINARY COURSE
(Common to PG Programmes)

STATISTICAL TECHNIQUES

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Past records is an example of..... a) Primary data b) Secondary data c) Sampling d) Tabulation	K1	CO1
	2	The method of collecting a sample is called .... a) Data collection b) Classification of data c) Sampling d) Frequency	K2	CO1
2	3	The variance of the binomial distribution is .... a) np b) npq c) λ d) 2λ	K1	CO2
	4	The mean of the Poisson distribution is ..... a) np b) npq c) λ d) 2λ	K2	CO2
3	5	Statistical estimation procedures provide us with the means of obtaining estimates of .....parameters with desired degrees of precesion. a) Distribution b) Population c) Sample d) Variables	K1	CO3
	6	Estimation can be classified in to .....types a)1 b)2 c)3 d) 4	K2	CO3
4	7	In large samples the standard error of the mean measures only ..... a) Sampling errors b) Non sampling errors c) Standard deviation d) Population	K1	CO4
	8	Chi-square test is used to test the independence of ..... a) Degrees of freedom b) Level of significance c) Critical region d) Attributes	K2	CO4
5	9	The t distribution is symmetrical and has a mean ..... a) Zero b) Skewed c) Positive d) Equal	K1	CO5
	10	Which of the following is an example of the assumption of Analysis of variance. a) Heterogeneity b) Error c) Variance d) Normality	K2	CO5

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	List the objectives of tabulation.	K2	CO1
		(OR)		
	11.b.	Describe the methods of Collecting the primary data.		
2	12.a.	The incidence of a certain disease is such that on the average 20% of workers suffer from it. If 10 workers are selected at random. Find the probability that (i) Exactly 2 workers suffer from the disease, (ii) not more than 2 workers from the disease.	K4	CO2
		(OR)		
	12.b.	Suppose on an average 1 house in 1,000 in a certain district has a fire during a year. If there are 2,000 houses in that district, what is the probability that exactly 5 houses will have a fire during the year?		

Cont...

3	13.a.	Describe the point estimates.	K2	CO3
		(OR)		
	13.b.	Explain the interval estimation.	K3	
4	14.a.	The standard deviation of the height of students of a college is 4.0 cm. Two samples are taken. The standard deviation of 100 B.Com students is 3.5 cm and 50 B.A Economics students is 4.5 cm. Test the significance of the difference of standard deviations of the samples.	K2	CO4
		(OR)		
	14.b.	A certain drug was administered to 500 people out of a total of 800 included in the sample to test its efficacy against typhoid. The results are given below Typhoid / No Typhoid / Total Drug: 200 / 300 / 500 No drug: 280 / 20 / 300 Total: 480 / 320 / 800 On the basis of these data, can it be concluded that the drug is effective in preventing typhoid?		
5	15.a.	In a test given to two groups of students drawn from two normal populations, the marks obtained were obtained as follows. Group A : 18 20 36 50 49 36 34 49 41 Group B : 29 28 26 35 30 44 46 Examine at 5% level, whether the two population have the same variance.	K2	CO5
		(OR)		
	15.b.	Twelve students were given intensive coaching and tests were before and after coaching. Is there any improvement due to coaching? Marks in I test(before) :50 42 51 26 35 42 60 41 70 55 62 38 Marks in II test(after) :62 40 61 35 30 52 68 51 84 63 72 50		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks $(3 \times 10 = 30)$

Module No.	Question No.	Question	K Level	CO
1	16	Illustrate the type of classification in Statistics.	K2	CO1
2	17	The income of a group of 10,000 persons was found to be normally distributed with mean Rs 750 per month and standard deviation Rs 50. Show that for this group about 95% had income exceeding Rs 832. What is the lowest income among the richest 100?	K3	CO2
3	18	Explain the properties of a good estimator.	K2	CO3
4	19	A college conducts both day and night classes intended to be identical. A sample of 100 day students yields examination results as under $\overline{x_1} = 72.4$ and $\sigma_1 = 14.8$ A sample of 200 night students yields examination results as under $\overline{x_2} = 73.9$ and $\sigma_2 = 17.9$ Are the two means statistically equal at 10% level?	K2	CO4
5	20	Three samples below have been obtained from normal population with equal variances .test the hypothesis that the samples means are equal. **Samples.** 8 / 7 / 12 10 / 5 / 19 7 / 10 / 13 14 / 9 / 12 11 / 9 / 14 The value of F at 5% level of significance is 3.88	K2	CO5

Z-Z-Z END