QP Code: P25DRIS025

Reg. No : ....

Name : ....

ST MARY'S COLLEGE (AUTONOMOUS), THRISSUR-20

I SEMESTER (CBCSS - PG) DEGREE EXAMINATIONS, NOVEMBER 2025

(Regular/Improvement/Supplementary)

M. Com.

MCM1C03 : Quantitative Techniques for Business Decisions

2024 Admission Onwards

Time: 3 Hours **Maximum Weightage: 30**

Part A

*Short answer type questions. Answer **any four**. Weightage **2** for each.*

(4x2 = 8 Weightage)

1. Explain the terms.
   a) One tailed and two tailed tests.
   b) Standard deviation and standard error.
   c) Level of significance and power of a test.
2. 50 children were given special diet for a certain period and control group of 50 other children were given normal diet. Their average gain in weight were found to be 7.2 lbs and 5.7 lbs respectively and the common standard deviation for the gain in weight was 2 lbs. Assuming normality of the distribution, would you conclude that the special diet really promoted the weight?
3. A basket contains 20 rottan oranges and 80 good oranges. Three are drawn at random from this basket. Find the probability that of three a) exactly 2 are good b) at least one is good c) utmost two are good oranges.
4. A sample of 60 items has SD=5 and another sample of 80 items has SD=4.5. Can you assert that the two samples belong to the same population?
5. Explain sampling distribution. What are its uses?
6. The standard deviation of two samples of sizes 10 and 14 from two normal populations are 3.5 and 3.0 respectively. Examine whether the standard deviation of the population are equal.
7. Explain non parametric test. What are its assumptions? What are its advantages and disadvantages?

Part B

*Short essay-type questions. Answer **any four**. Weightage **3** for each.*

(4x3 = 12 Weightage)

8. Explain the various methods of quantitative techniques.

Turn Over

9. In a certain factory turning out optical lenses there is a small chance of 1/500 for any one lens to be defective. The lenses are supplied in packets of 10. Calculate the approximate number of packets containing no defective, b) one defective, c) two defective, d) three defective lenses respectively in a consignment of 20000 packets.

10. In a certain district A, 450 persons were considered regular consumers of tea out of a sample of 1000 persons. In another district B, 400 were regular consumers of tea out of a sample of 800 persons. Do these facts reveal a significant difference between the two districts as far as tea drinking habit is considered?

11. A soap manufacturing company was distributing a particular brand of soap through a number of shops. Before a heavy advertisement campaign, the mean sales per week per shop was 140 dozens. After the campaign a sample of 20 shops was taken and mean the sales was found to be 147 dozen with standard deviation 16. Can you consider the advertisement effective?

12. The average number of articles produced by two machines per day are 200 and 250 with standard deviations 20 and 25 respectively on the basis of 25 day's production. Are both the machines equally efficient at 1 % level of significance?

13. The results of a survey to know the educational attainment among 164 persons randomly selected in a locality are given below.

	Education			
	High School	Plus two	College	Total
Male	52	10	20	82
Female	44	12	26	82
Total	96	22	46	164

Can you say education depends on gender at 5% level of significance?

14. Compute Karl Pearson's coefficient of correlation and comment on the results obtained.

Price :	11	12	13	14	15	16	17	18	19	20
Demand :	30	29	29	25	24	24	24	21	18	15

Part C

Essay-type questions. Answer ***any two****. Weightage* ***5*** *for each.*

(2x5 = 10 Weightage)

15. The income of a group of 10000 persons was found to be normally distributed with mean Rs. 750 per month and standarad deviation of 50.
a) Show that of this group about 95% had income exceeding Rs.668 and only 5% had income exceeding Rs.832.
b) What was the lowest income among the richest 100?

16. From the adult population of four large cities, random samples were selected and the number of married and unmarried men were recorded.

	Cities				
	A	B	C	D	Total
Married	137	164	152	147	600
Single	32	57	56	35	180
Total	169	221	208	182	780

Is there significant variation among the cities in the tendency of men to marry?

17. From the following data of the age of husband and the age of wife, form the two regression equations and calculate the husband's age when the wife's age is 16. Also find the age of wife when the husband's age is 40.

Husband's age:	36	23	27	28	28	29	30	31	33	35
Wife's age:	29	18	20	22	27	21	29	27	29	28

18. Explain in detail descriptive statistics and inferential analysis.

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