

QP CODE: 24018974



Reg No : .....

Name : .....

**M.COM DEGREE (CSS) EXAMINATION , APRIL 2024**

**Second Semester**

**CORE - CM010204 - QUANTITATIVE TECHNIQUES**

M.COM FINANCE AND TAXATION, M.COM FINANCE AND TAXATION (SF), M.COM MANAGEMENT AND INFORMATION TECHNOLOGY (SF), M.COM MARKETING AND INTERNATIONAL BUSINESS (SF), M.COM MASTER OF COMMERCE AND MANAGEMENT

2019 Admission Onwards

322E0A4E

Time: 3 Hours

Weightage: 30

**Part A (Short Answer Questions)**

Answer any **eight** questions.

Weight **1** each.

1. The probability that a batsman scores a century in a cricket match is  $\frac{1}{3}$ . Find the probability that out of 10 matches, he may score century in exactly two matches.
2. List out any five practical situations in which Poisson distribution can be used.
3. What do you mean by standard normal variate?
4. A sample of 100 measurements at breaking strength of cotton thread gave a mean of 7.4 and a standard deviation of 1.2 gms. Find 95% confidence limits for the mean breaking strength of cotton thread.
5. What is meant by coding with reference to Analysis of Variances?
6. In four round golf play at the City Club 11 professionals totalled 280, 282, 290, 273, 283, 283, 275, 284, 282, 279 and 281. Use sign test at 5% level of significance to test the null hypothesis that professional golfers' average is 284.
7. When can run test be applied?
8. Explain random variation.
9. When do we use multi-variate analysis?
10. What is confirmatory factor analysis?

(8×1=8 weightage)

**Part B (Short Essay/Problems)**

Answer any **six** questions.

Weight **2** each.

11. "Quantitative techniques are the final word in business decision making". Do you agree?



12. For a normal distribution with mean 60 and standard deviation 6, Calculate (i) Probability that the random variable takes a value less than 40 (ii) Probability that the random variable takes a value greater than 68 (iii) Probability that the random variable lies between 50 and 55.
13. A soap manufacturing company was distributing a particular brand of soap through a number of retail 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 sales was found to be 147 dozen with standard deviation 16. Can you consider the advertisement effective?
14. A coin is flipped 10 times and head comes 8 times. Test the hypothesis at 95% level that coin is not imbalanced?
15. Test the significance of correlation  $r = 0.5$  from a sample of size 18 against correlation  $p = 0.7$ .
16. Narrate the various advantages of using non-parametric tests.
17. Write note on sampling inspection plan.
18. What are the steps for performing multiple regression analysis?

(6×2=12 weightage)

### Part C (Essay Type Questions)

Answer any **two** questions.

Weight 5 each.

19. Proof reading of 200 pages of a book containing 500 pages gave the following results:

No. of mistakes per page	0	1	2	3	4	5
Frequency	113	62	20	3	1	1
Cost per page of checking	1.0	1.5	2.5	3.0	3.5	4.0

Fit a Poisson distribution and estimate the total cost of correcting the whole book.

20. Explain the test procedure for testing equality of two population means.
21. Two researchers adopted different sampling techniques while investigating the same group of students to find the number of students falling in different intelligence levels. The results are as follows

Researcher	Below average students	Average students	Above average students	Genius students	Total
X	86	60	44	10	200
Y	40	33	25	2	100
Total	126	93	69	12	300

Would you say that the sampling techniques adopted by the two researchers are significantly different? ( Given 5% values of Chi-Square for 3 d.f. and 4 d.f. are 7.82 and 9.49 respectively)

22. You are given the values of sample means and the range for 10 samples of size 5 each. Draw Mean and Range charts and comment on the state of control of the process.

Sample	1	2	3	4	5	6	7	8	9	10
Mean	43	49	37	44	45	37	51	46	43	47
R	5	6	5	7	7	4	8	6	4	6

(2×5=10 weightage)