QP CODE: 23004989

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Reg No : .....

Name : .....

M.COM DEGREE (CSS) EXAMINATION , JULY 2023

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

D42EB648

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Bring out the limitations of Quantitative Techniques.
2. Explain the properties of Binomial distribution.
3. Explain any five properties of Poisson distribution.
4. What are the conditions to be satisfed to apply Z test?
5. A certain stimulus administered to each of the 12 patients resulted in the following increase of blood pressure 5, 2, 8, -1, 3, 0, -2, 1, 5, 0, 4, 6. Can it be concluded that the stimulus will, in general be accompanied by an increase in blood pressure?
6. Write a note on Two Sample Sign Test
7. Explain in brief Kruskal-Wallis Test.
8. State the different types of variations in SQC.
9. What is linear discriminant analysis?
10. What are factor loadings?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. What is Normal distribution? Describe its properties in detail. Bring out its importance in statistics.

12. A cement manufacturing company guarantees that the weight of the cement bag is 25 Kg. In fact, the process by which the bags are filled gives normally distributed weights with mean 25.5 Kg and standard deviation 0.6 Kg. What is the probability that a bag will not contain the guaranteed weight?

13. Explain one tail and two tail tests.

14. Out of a consignment of 400, 40 were found to be defective. Estimate the limits within which the proportion of defectives is expected to lie for the entire population at 95 % confidence interval.

15. Write down the assumptions of analysis of variance.

16. In a cross between whilte flowered and yellow flowered plants it was found that of the 452 flowers obtained 119 were yellow and rest white.Is this consistent with the hypothesis that white and yellow flowers are in the ratio 3:1?

17. In a factory a packing machine packs curry powder of 100 gram weight. The quality control manager takes a sample of 8 packets each day. The range of data recorded for 10 days are given below. Help the quality control manager to decide whether any corrective action is required by preparing range chart. Given for n=8 D_3 =0.136 and D_4 = 1.864

Day	1	2	3	4	5	6	7	8	9	10
Range	4	3	5	6	4	2	3	4	3	2

18. What is the significance of multi-variate analysis?

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Fit a normal curve to the following data:

Variable	Frequency
10-12	5
13-15	18
16-18	42
19-21	27
22-24	8

20. Ten soldiers visit a rifle range for two consecutive weeks. For the first week, their scores are 67, 24, 57, 55, 63, 54, 56, 68, 33, 43 and during the second week, they score in the same order 70, 38, 58, 58, 56, 67, 68, 72, 42, 38. Examine, if there is significant difference in their performance.

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. The following figures give the number of defectives in 20 samples each containing 2000 items

Sample	1	2	3	4	5	6	7	8	9	10
No. of defectives	425	430	216	341	225	322	280	306	337	305
Sample	11	12	13	14	15	16	17	18	19	20
No. of defectives	356	402	216	264	126	409	193	326	280	389

Calculate the values for central line and the control limits for p-chart. Draw the p-chart and comment if the process can be regarded as under control or not?

(2×5=10 weightage)