M.COM DEGREE (CSS) EXAMINATION , NOVEMBER 2020

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)

2019 Admission Onwards

95EF186B

Time: 3 Hours   Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Give five uses of Quantitative Techniques.

2. Discuss the applications of Binomial distribution.

3. The variable X follows a normal distribution with mean 50 and S.D= 5. Find $P(45< x < 60)$

4. 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 gain in weight was 2 lbs. Assuming normality of the distributions would you conclude that the special diet really promoted weight?

5. State the different types of Variance in One way ANOVA classification.

6. The theory predicts the proportion of labours, in the four groups A,B,C and D should be 9 : 3 : 3 : 1. In an experiment among 1600 labours, the numbers in the four groups were 882, 313, 287 and 118. Does the experimental result support the theory? (The table value of chi-square for 3 d.f at 5% level of significance is 7.81)

7. 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.

8. Find UCL and LCL for R chart from the following data. Given $D_4 = 1.622$ and $D_3 = 0.378$ for n=17 Mean of Range = 15.1

9. When do we use multi-variate analysis?

10. What is multiple discriminant analysis?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Define poisson distribution and state the conditions under which it is used.

12. What is Normal distribution? Discuss the applications of Normal distribution.

13. Explain the different types of Hypothesis.

14. In 3 samples of 50 lines each from Shakespeare's early play 'Romeo & Juliet', the following no. of weak endings were observed – 7, 9 & 10. In 3 samples from Cymbeline, a later play, the no. of weak endings were 15, 11 & 12. Discuss the suggestion that Shakespeare's prosody as judged by no. of weak endings increased with advancing years.

15. 1000 ladies were chosen at random from the inhabitants of Bombay city and 550 were found to have dark eyes. Does this finding contradict the hypothesis that the event of a lady having dark ayes has probability 1/2?

16. A sample of 400 students of under-graduate and 400 students of post-graduate classes was taken to know their opinion about autonomous colleges. 290 of the undergraduate and 310 of the post-graduate students favoured the autonomous status. Present these facts in the form of a table and test, at 5% level, that the opinion regarding autonomous status of colleges is independent of the level of classes of students.

    (Table value of chi-square at 5% level is 3.84 for 1 d.f)

17. What are control charts? What are the steps involed in the construction of control charts?

18. Breifly describe the types of factor analysis.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. The following distribution given below shows the typing mistakes committed by a typist. Assuming a Poisson model, find the expected frequencies.

x	0	1	2	3	4	5
f	142	156	69	27	5	1

20. The prices of a commodity in four shops in four towns are given below. Test the significance of price difference in shops and towns.

Towns	Shops			
	1	2	3	4
1	60	50	60	50
2	50	40	65	50
3	45	35	45	50
4	65	45	60	70

21. The following are the kilometres per gallon which a test driver got for ten tanksful each of three kinds of gasoline:

Gasoline A - 30, 41, 34, 43, 33, 34, 38, 26, 29, 36
Gasoline B - 39, 28, 39, 29, 30, 31, 44, 43, 40, 33
Gasoline C - 29, 41, 26, 36, 41, 43, 38, 38, 35, 40

Use the Kruskal-Wallis test at the Level Of Significance $\propto = 0.05$ to test the null hypothesis that there is no difference in the average kilometre yield of the three types of gasoline.

22. The number of defects detected on 20 items are given below. Draw a control chart for the number of defects and comment whether the process is under control or not?

Item	1	2	3	4	5	6	7	8	9	10
No. of defects	2	0	4	1	0	8	0	1	2	0
Item	11	12	13	14	15	16	17	18	19	20
No. of defects	6	0	2	1	0	3	2	1	0	2

(2×5=10 weightage)