Reg. No ....................       Name ..............................       **18P158**

## M. COM DEGREE END SEMESTER EXAMINATION - NOVEMBER 2018
### SEMESTER 1 : COMMERCE
COURSE : **16P1COMT05 : QUANTITATIVE TECHNIQUES**
*(For Regular - 2018 Admission & Supplementary - 2016 / 2017 Admissions)*

Time : Three Hours                                               Max. Marks: 75

### Section A
### Answer any 10 (2 marks each)

1.  Define Quantitative Technique
2.  Mention two methods of classifying of Quantitative Techniques.
3.  Define Independent Events.
4.  What is meant by conditional probability?
5.  State the multiplication rule for dependent events.
6.  Explain population and sample with suitable illustration.
7.  Distinguish between Type I and Type II error.
8.  Give two uses of $t$ test.
9.  What is complex random sampling?
10. What are non-parametric tests?
11. State the uses of $\chi^2$ statistic in testing of hypothesis.
12. What do you mean by the term 'association of attributes' ?

                                                               **(2 x 10 = 20)**

### Section B
### Answer any 5 (5 marks each)

13. Explain the uses of Quantitative Techniques to businessmen.
14. State and prove Bayes theorem.
15. Assume the mean height of soldiers to be 68.52 inches with a variance of 10.8 inches. How many soldiers in a regiment of 1000 would you expect is to be over six feet tall?
16. A sample of size 10 is drawn from each of two normal population with the same unknown variance and the following results are obtained:

    | | Mean | Variance |
    | --- | --- | --- |
    | Sample I ....... | 7 | 26 |
    | Sample II ....... | 4 | 10 |

    Test at 5% significance level if the two populations have the same mean ( Null and Alternative hypothesis should be stated clearly)
17. Explain briefly students 't' test pointing out its salient features.
18. Explain the meaning and significance of the concept of standard error.
19. What is $\chi^2$ test?  What are the steps involved in finding out the value of $\chi^2$ ?
20. Can vaccination be regarded as a preventive measure of small pox from the data given below.
    Of 1482 persons in a locality, exposed to small pox, 368 in all were attacked, among the 1482 persons 343 had been vaccinated among these only 35 were attacked.

                                                               **(5 x 5 = 25)**

## Section C
### Answer any 3 (10 marks each)

21. What do you mean by Quantitative Techniques? Explain the application of quantitative techniques in business management. Give examples in support of your answer.

22. Describe the main characteristics of normal distribution. Discuss the importance of normal distribution in statistical theory.

23. A tea compnay appoints four salesman A, B, C, and D and observes their sales in three seasons, Summer, Winter and Monsoon. The figures (in lakhs) are given in the following table.

| Seasons | Salesman | | | | Total |
|---|---|---|---|---|---|
| | A | B | C | D | |
| Summer | 36 | 36 | 21 | 35 | 128 |
| Winter | 28 | 29 | 31 | 32 | 120 |
| Monsoon | 26 | 28 | 29 | 29 | 112 |
| Total | 90 | 93 | 81 | 96 | 360 |

Carry out the analysis of variance
Table value for d.f. (3,6) F 0.05 = 4.76. Table value for d.f. (2,6) F 0.05 = 5.14

24. Explain the procedure generally followed in testing of a hypothesis. Point out the difference between one tailed and two tailed test.

25. Two groups of 50 handicaps each were taken to study the association of blindness with deafness and the observations were tabulated as under. Use the chi-square test at 5% level to verify the association of blindness with deafness.

| Attributes | Blind | Not blind | Total |
|---|---|---|---|
| Deaf | 10 | 40 | 50 |
| Not deaf | 30 | 20 | 50 |
| Total | 40 | 60 | 100 |

**(10 x 3 = 30)**