M.COM. DEGREE END SEMESTER EXAMINATION NOVEMBER 2017

SEMESTER – 1: COMMERCE

COURSE: **16P1COMT05: QUANTITATIVE TECHNIQUES**

(Common for Regular 2017 admission and Supplementary 2016 admission)

Time: Three Hours   Max. Marks: 75

SECTION A

ANSWER **ANY** *TEN* QUESTIONS.EACH CARRIES TWO MARKS

1. What do you mean by dependent events?
2. What do you mean by type 1 and Type II errors associated with testing of hypothesis?
3. Discuss the Law of statistical Regularity.
4. A bag contains 30 balls numbered from 1to 30. If one ball is drawn at random, find the probability that the number of the ball drawn will be a multiple of 5 or 7.
5. What is a random variable?
6. What do you mean by a binomial distribution?
7. Discuss the assumptions for Student 't' test.
8. What do you mean by level of significance?
9. Enumerate the uses of Chi-square test?
10. Distinguish between descriptive hypothesis and relational hypothesis?
11. What do you mean by point estimation?
12. What do you mean by sampling errors? Give two examples for sampling errors?   ($2 \times 10 = 20$)

SECTION B

ANSWER **ANY** *FIVE* QUESTIONS. EACH QUESTION CARRIES FIVE MARKS

13. Discuss the procedures to be followed for hypothesis testing?
14. In a sample of 500 people from a village in Bihar, 280 are found to be tea drinkers and the remaining are coffee drinkers. Can we assume that both tea and coffee are equally popular?
15. What do you mean by an estimator? Examine the criteria for a good estimator.
16. Explain the differences between parametric and nonparametric tests.
17. If in a village actually involved by anthrax, 70% of goats are attacked and 85% have been inoculated with vaccine; what is the lowest percentage of inoculated that must have been attacked?
18. In a bolt factory, Machines A, B, and C manufacture respectively, 25%, 35% and 40% of the total output. Of their output respectively, 5%, 4% and 2% are known to be defective. What is the probability that it is produced by machine B?
19. Between the hours of 2 and 4 pm the average number of phone calls per minute coming in to the switch board of a company is 2.5. Find the probability that during a particular minute there will be no phone call at all.

20. The mean breaking strength of the cables supplied by a manufacturer is 1800 with a standard deviation 100. By a new technique in the manufacturing process it is claimed that the breaking strength of the cables have enhanced. In order to test this claim a sample of 50 cables is tested. It is found that the mean breaking strength is 1850. Can you support this at 1% level of significance?

(5 x 5 = 25)

SECTION C
ANSWER **ANY** *THREE* QUESTIONS. EACH QUESTION CARRIES 10 MARKS

21. The customer accounts at a certain departmental store have an average balance of Rs.480 and a standard deviation of Rs.160.Assuming that the account balances are normally distributed :
    a) What proportion of the accounts is over Rs.600
    b) What proportion of the accounts is between Rs.400 and Rs.600?
    c) What proportion of the accounts is between Rs.240 and Rs.360

22. 1,000 students at college level are graded according to their I.Q. and their economic conditions. Using Chi-square test find out whether economic conditions and I.Q are independent.

Economic	I.Q.			
conditions	High	Medium	Low	Total
Rich	160	300	140	600
Poor	140	100	160	400
Total	300	400	300	1000

23. To study the performance of three detergents and three water temperatures the following whiteness readings were obtained with specially designed equipments:

Water temperature	Detergent A	Detergent B	Detergent C
Cold water	57	55	67
Warm water	49	52	68
Hot water	54	46	58

Perform ANOVA to test whether there is significant difference in whiteness due to three varieties of detergents, using 5% level of significance.

24. What do you mean by probability sampling? Explain the different methods used under probability sampling for selecting samples?

25. Discuss the functions and limitations of Quantitative techniques in business.

(10 x 3 = 30)

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