

FOURTH SEMESTER B.Com. DEGREE EXAMINATION, MAY 2011

(CCSS)

Complementary

BC 4C O4—QUANTITATIVE TECHNIQUES FOR BUSINESS

Three Hours

Maximum : 30 Weightage

1. Objective Type Questions. Answer *all twelve* questions :

Choose the correct answer :

1. If the two lines of regression are perpendicular to each other, then the value of correlation coefficient is :

(a) + 1.

(b) - 1.

(c) 0.

(d) any positive value.

2. The limiting relative frequency approach to probability is known as :

(a) Statistical probability.

(b) Classical probability.

(c) Mathematical probability.

(d) All the above.

3. A distribution in which mean is equal to variance is :

(a) Binomial distribution.

(b) Gamma distribution.

(c) Normal distribution.

(d) Poisson distribution.

4. Size of critical region is known as :

(a) power of the test.

(b) size of type II error.

(c) critical value of test statistic.

(d) size of the test.

the blanks :

5. The mean of binomial distribution $b(n, p)$ is _____.

6. The hypothesis that the population mean has a specified value can be tested by _____ test, if the sample size is large.

7. If there are two variables X and Y, there can be atmost _____ regression lines.

8. Totality of all possible outcomes of a random experiment is called _____.

the following :—

9. Give the limits within which probability lies.

10. What is the mean of *r.v.* X if $X \sim N(5, 4)$?

Turn over

- 11 What will be the value of correlation coefficient if X and Y are independent ?
- 12 What will be degrees of freedom for chi-square in case of contingency table of order 4×3 ?
($12 \times \frac{1}{4} = 3$ weights)

II. Short Answer Questions. Answer all *nine* questions :

- 13 Define simple and composite hypothesis. Give examples.
- 14 Define (a) Mutually exclusive events and ; (b) Independent events. Give example.
- 15 Give the classical definition of probability.
- 16 Give the applications of Quantitative Techniques in business management.
- 17 In tossing tree coins at a time, what is the probability of getting at most one head.
- 18 A population is distributed as normal with mean μ and standard deviation, 10.24. A sample of 576 items has a mean 4.7. What is the value of the test statistic to test $H_0 : \mu = 5.2$?
- 19 If $\bar{X} = 66.6$, $\bar{Y} = 66.3$, $b_{yx} = 0.507$ and $b_{xy} = 0.655$, with down :
- regression line of X on Y and
 - regression line of Y on X.
- 20 Write down the characteristics of a normal distribution.
- 21 If $X \sim b(n, p)$ with $E(X) = 4$ and $V(X) = \frac{4}{3}$, find $P(X > 5)$.

($9 \times 1 = 9$ weights)

III. Short essays or paragraph questions. Answer any *five* questions from seven :

- 22 A problem is given to five students A, B, C, D and E. Their chances of solving it are :

$$\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5} \text{ and } \frac{1}{6}.$$

What is the probability that the problem is solved ?

- 23 What is the probability that a leap year will contain 53 Sundays ?
- 24 In an intelligence test administered to 1,000 students the score follows normal distribution with mean 42 and standard deviation 24. Find the number of students exceeding a score of
- 25 The manufacturer claims that only 4% of the items supplied by him are defective. A random sample of 600 items contained 36 defectives. Test the claim of the manufacturer at 5% level of significance.