

**THIRD SEMESTER B.B.A. DEGREE EXAMINATION, NOVEMBER 2015**

(CUCBCSS—UG)

Complementary Course

**BBA IIIC 03—QUANTITATIVE TECHNIQUES FOR BUSINESS**

Time : Three Hours

Maximum : 80 Marks

**Part I**

*Answer all the questions.  
Each question carries 1 mark.*

**Choose the correct answer from the choices given :****1 An event in probability is :**

- (a) Actual outcome. \_\_\_\_\_ (c) Expected outcome.  
(b) Random outcome. \_\_\_\_\_ (d) Possible outcome.

**2 The height of persons in a country is a random variable of the type :**

- (a) Discrete random variable.  
(b) Continuous random variable.  
(c) Continuous as well as discrete random variable.  
(d) Neither discrete nor continuous random variable.

**3 Sampling is inevitable in the solution of :**

- (a) Blood test of a person.  
(b) When population is infinite.  
(c) Test of life of dry battery cells.  
(d) All the above.

**4 Correlation of two variables is zero, it indicate :**

- (a) Positive correlation. \_\_\_\_\_ (c) No correlation.  
(b) Negative correlation. \_\_\_\_\_ (d) None of these.

**5 If X and Y are independent, the value of  $b_{yx}$  is equal to :**

- (a) 0. \_\_\_\_\_ (c) 00.  
(b) 1. \_\_\_\_\_ (d) Any positive value.

**Turn over**

Fill in the Blanks :

- 6 The hypothesis complementary to null hypothesis is \_\_\_\_\_
- 7 Two coins tossed simultaneously, probability of getting atleast one head is \_\_\_\_\_
- 8 When observed frequency are given in the shape of contingency table then the degree of freedom is \_\_\_\_\_
- 9 If both regression coefficients are negative, then the correlation coefficient would be \_\_\_\_\_
- 10 If ratio of change in one variable is equal to the ratio of change in the other variable, the correlation is said to be \_\_\_\_\_

(10 x 1 = 10 marks)

### Part II

*Answer any **eight** questions.  
Each question carries 2 marks.*

- 1.1 Explain the scope of quantitative techniques.
- 12 What is partial correlation ?
- 13 Distinguish between type I error and type II error.
- 14 Define regression analysis.
- 15 Distinguish between dependent event and independent event.
- 16 A fair coin is tossed ; find the chance of getting 3 heads.
- 17 The probability that a contractor will get a plumbing contract is  $\frac{2}{3}$  and the probability that he will not get an electric contract is  $\frac{5}{9}$ . If the probability of getting atleast one contract is  $\frac{4}{5}$ . What is the probability that he will get both the contracts.
- 18 A computer while calculating the correlation coefficient between two variables X and Y from 17 pairs of observations obtained the following results.

$$n = 17 \quad \sum x = 544 \quad \sum x^2 = 19040 \quad \sum y = 244 \quad \sum y^2 = 3773 \quad \sum xy = 8413$$

Find the correlation coefficient  $b_{yx}$ .

- 19 Define standard normal distribution.
- 20 What is level of significance of a test ?

(8 x 2 = 16 marks)

### Part III

*Answer any **six** questions.  
Each question carries 4 marks.*

- 21 Explain different types of correlation.
- 22 State and prove addition theorem. for two events. Deduce the results for three events..

- 23 What do you mean by one way analysis of variance ? Explain procedure for carrying out analysis of variance in one way classification.
- 24 The average life of 26 electric bulbs were found to be 1,200 hours with a standard deviation of 150 hours. Test whether these bulbs could be considered as a random sample from a normal population with mean 1300 hours.
- 25 An urn A contains 2 white and 4 blackballs. Another urn B contains 5 white and 7 black balls. A ball is transferred from the urn A to urn B. Then a ball is drawn from urn B. Find the probability that it will be white.
- 26 Calculate coefficient of correlation between X and Y from the following data :
- $$n = 13 \quad \sum d_x = 117 \quad \sum d_y = 1313 \quad \sum d_x d_y = 260 \quad \sum d_x^2 = 6580 \quad \sum d_y^2 = 2827.$$
- 27 Eight coins were tossed together, 256 times. Find the expected frequencies of heads.
- 28 Coefficient of correlation between two variables is calculated to be  $-0.98$ . Find the value of probable error and hence interpret the result ( $n = 10$ ). Find the limits within which population correlation may lie.

(6 x 4 = 24 marks)

**Part IV**

*Answer any two questions.  
Each question carries 15 marks.*

- 29 Explain the procedure generally followed in testing of a hypothesis, point out the difference between one tail and two tail tests.
- 30 The following table gives the yield of three varieties :

Varieties	Yields				
1	30	27	42		
2	51	47	37	48	42
3	44	35	41	36	

Perform an analysis of variance on this data.

- 31 From the following data of the age of husband and the age of wife, form the two regression equations and calculate the husband's age, when the wife's age is 16.

Husband's age	36	23	27	28	29	30	31	33	35
Wife's age	29	18	20	27	21	29	27	29	28

Also find the age of wife when husband's age is 40.

(2 x 15 = 30 marks)