

**D 91637**

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Name.....

Reg. No.....

**THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION  
NOVEMBER 2020**

**B.B.A.**

**BBA IIC 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. The theory used to determine the optimum strategy in a competitive situation :

- (a) Sequencing. (b) Network theory.  
(c) Game theory. (d) Simulation.

2. The regression co-efficient  $b_{xy}$  if  $3x + 2y + 4 = 0$  is the equation of  $x$  on  $y$  :

- (a)  $2/3$ . (b)  $-2/3$ .  
(c)  $4/3$ . (d)  $-4/3$ .

3. The probability of getting a total of 7 or 11 in a single throw with two dice :

- (a)  $1/3$ . (b)  $2/3$ .  
(c)  $2/9$ . (d)  $3/9$ .

4. A random variable  $X$  has the values 1 and 2 with probabilities  $1/3$  and  $2/3$  respectively. Then its mean :

- (a)  $2/3$ . (b) 1.  
(c)  $4/3$ . (d)  $5/3$ .

**Turn over**

5. Normal distribution is :

a) Mesokurtic.

b) Leptokurtic.

c) Platykurtic.

d) None of these.

Fill in the blanks :

6. A Standard normal variate has mean zero and variance \_\_\_\_\_.

7. Accepting a null hypothesis when it is false is termed as \_\_\_\_\_.

8. A distribution free statistical test is usually known as \_\_\_\_\_.

9. If  $E(X) = 3.5$ , then  $E(2x + 7)$  \_\_\_\_\_.

10. Two way classification model analysis of variance is called \_\_\_\_\_ analysis.

(10 × 1 = 10 marks)

### Part II

*Answer any eight questions.*

*Each question carries 2 marks.*

11. What is Simulation ?

12. What is meant by partial correlation ?

13. Write any four properties of regression co-efficients ?

14. State Bayes theorem.

15. A petrol pump proprietor sells on an average Rs. 80,000 worth of petrol on rainy days and an average of Rs. 95,000 on clear days. Statistics from the meteorological department show that the probability is 0.76 for clear weather and 0.24 for rainy weather on coming Wednesday. Find the expected value of petrol sale on coming Wednesday.

16. Assume the mean height of soldiers to be 68.22 inches with a variance of 10.8 inches. How many soldiers of a regiment of 1000 would you expect to be over six feet tall.

17. What are the main uses of F test ?

18. Distinguish between one tailed and two tailed tests ?

19. What is the difference between large sample and small sample ?

20. An investigation of a sample of 64 BBA students indicated that the mean time spend on preparing for the examination was 48 months and the S.D. was 15 months. What is the average time spent by all BBA students before they complete their examinations.

(8 × 2 = 16 marks)

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

21. Explain Statistical Quantitative Techniques ?
22. The Co-efficient of rank correlation of the marks obtained by 10 students in statistics and English was 0.2. It was later discovered that the difference in ranks of one of the students was wrongly taken as 7 instead of 9. Find the correct result.

23. Following information is obtained from the records of a business organization :—

Sales (in '000)	:	91	53	45	76	89	95	80	65
Advertisement Expense (in '000)	:	15	8	7	12	17	25	20	13

1 Obtain the two regression equations ; and

2 Estimate the advertisement expenditure for a sale of Rs. 1,20,000.

24. A manufacturing firm produces units of products in 4 plants, A, B, C and D. From the past records of the proportions of defectives produced at each plant, the following conditional probabilities are set :— A : 0.5 ; B : 0.10 ; C : 0.15 and D : 0.02 The first plant produces 30 % of the units of the output, the second plant produces 25 %, third 40 % and the fourth 5 % A unit of the products made at one of these plants is tested and is found to be defective. What is the probability that the unit was produced in Plant C.

25. Explain the procedure of testing of hypothesis.

26. In a sample study about the tea habit in two towns, following data are observed in a sample of size 100 each :—

Town —A :- 51 persons were male, 31 were tea drinkers and 19 were male tea drinkers.

Town — B :- 46 persons were male, 17 were male tea drinkers and 26 were tea drinkers.

Is there any association between sex and tea habits ?

27. Explain the procedure of Wilcoxon matched pairs test signed rank test.

28. Distinguish between one way ANOVA and two way ANOVA ?

(6 × 4 = 24 marks)

**Turn over**

**Part IV**

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

29. Two random sample were drawn from two normal populations and their values are :—

A	:	66	67	75	76	82	84	88	90	92		
B	:	64	66	74	78	82	85	87	92	93	95	97

Examine whether the standard deviations of the population are equal ?

30. From the adult population of four large cities, random samples were selected and the number of married and unmarried men were recorded

**CITIES**

	A	B	C	D	Total
Married	137	164	152	147	600
Single	32	57	56	35	180
Total	169	221	208	182	780

Is there significant variation among the cities in the tendency of men to marry.

31. Apply the technique of analysis of variance to the following data relating to yields of 4 varieties of wheat in 3 blocks :

Varieties	Blocks		
	X	Y	Z
A	10	9	8
B	7	7	6
C	8	5	4
D	5	4	4

Carry two-way analysis of variance.

(2 × 15 = 30 marks)