C 31097 Reg (Pages : 4) Name.....

Reg. No.....

THIRD SEMESTER B.B.A. DEGREE EXAMINATION, NOVEMBER 2017

(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 operation research technique which resembles a real life situation :

   (a) Decision theory. (b) Simulation.

   (c) Game theory. (d) Queuing theory.

2. The range of variation of correlation coefficient lies between :

   (a) $-\infty < r < +\infty$. (b) $-\infty < r < +1$.

   (c) $-1 < r < +\infty$. (d) $-1 < r < +1$.

3. Geometric mean of the regression coefficients will be :

   (a) Coefficient of variation. (b) Coefficient of correlation.

   (c) Coefficient of determination. (d) None of these.

4. The probability of all possible outcomes of a random experiment is always equal to :

   (a) Infinity. (b) Zero.

   (c) One. (d) None of these.

5. The mean and variance of a binomial distribution are 8 and 4 respectively. Then P [x = 1] is equal to :

   (a) $1/2^{12}$. (b) $1/2^4$.

   (c) $1/2^6$. (d) $1/2^8$.

Turn over

Fill in the blanks :

6. ——— is the method which involves both statistical and mathematical techniques.
7. The standard deviation of the sampling distribution is termed as ———.
8. If β be the probability of type II error then $1-\beta$ is termed as ———.
9. ——— test is a non-parametric test used to compare three or more samples.
10. Analysis of variance utilizes ——— test.

(10 × 1 = 10 marks)

Part II

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

11. What do you mean by Quantitative Techniques ?
12. What is Spearman's rank correlation ?
13. What are the uses of regression analysis ?
14. The probability that A solves a problem in statistics is 2/5 and the probability that B solves it is 3/8. if they try independently find the probability that :
    (i) Both solve the problem.
    (ii) at least one solve the problem.
    (iii) none solve the problem.
15. What is the probability that a leap year selected at random will contain 53 Sundays ?
16. State any two applications of normal distribution.
17. A Poisson variate X is such that P [X = 1] = 2 P [X = 2] then find P [X = 3].
18. Explain simple hypothesis and composite hypothesis by examples.
19. Distinguish parametric and non-parametric tests.
20. What is F-test ?

(8 × 2 = 16 marks)

Part III

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

21. What are the uses of quantitative techniques ?

22. From the data given below calculate Karl Pearson's coefficient of correlation :

Age of husband	:	25	26	27	28	30	32	35
Age of wife	:	20	22	24	25	26	27	34

23. From the following regression lines find the mean values of X and Y also find the correlation coefficient r. $20X - 9Y = 107$; $4X - 5Y = -33$.

24. A committee is to be constituted by selecting three people at random from a group consisting of 5 Economists and 4 Statisticians. Find the probability that the committee will consist of :

    (a) 3 Economists.

    (b) 3 Statisticians.

    (c) 2 Economists and 1 Statistician.

    (d) 1 Economist and 2 Statistician.

25. In a Binomial Distribution consisting 5 independent trials, probability for 1 and 2 successes are 0.4096 and 0.2048 respectively. Find the parameter p and then fit the distribution.

26. The average number of articles manufactured by two machines per day and 200 and 250 with S.D. 20 and 25 respectively on the basis of 25 days' production. Can you regard both the machines are equally efficient at 1% level of significance ?

27. Explain the procedure of χ^2 -test as a test of goodness of fit.

28. Describe the technique of analysis of variance with an illustration for a two-way classifications ?

(6 × 4 = 24 marks)

Part IV

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

29. Fit a normal distribution of the following data :

Marks	:	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of Students	:	4	22	48	66	40	16	4

Turn over

30. 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.

31. The following data relate to the yield of 4 varieties of rice each shown on 5 plots. Find whether there is significant difference between the mean yield of these varieties :

	Treatment			
Plot name.	1	2	3	4
P	99	103	109	104
Q	101	102	103	100
R	103	100	107	103
S	99	105	97	107
T	98	95	99	106

(2 × 15 = 30 marks)