

TB142080B

Reg.No.....

Name.....

**B.COM DEGREE (CBCSS) EXAMINATION, APRIL 2015.
SECOND SEMESTER CORE- 4
QUANTITATIVE TECHNIQUES FOR BUSINESS RESEARCH.**

Time: 3 hours

Maximum: 80 Marks.

**PART-A (Short Answer questions)
Answer *all* questions. Each question carries 1 mark**

1. What is analytical research?
2. What do you mean by hypothesis?
3. What do you mean by multistage sampling?
4. Write the Spearman's rank correlation formula when certain ranks are equal.
5. What is a perfect correlation?
6. What is a random experiment?
7. What do you mean by 'Equally Likely Events'?
8. What do you mean by 'Permutation'?
9. Define the term 'independent events'.
10. Who introduced the classical theory of probability?

(10x1=10marks)

**PART-B Brief Answer Questions)
Answer any *eight* questions. Each question carries 2 marks.**

11. Distinguish between positive and negative correlation.
12. What do you mean by regression equations?
13. From the following data calculate coefficient of correlation.
 $b_{xy} = 0.854$; $b_{yx} = 0.89$; $x = 3$
14. The correlation coefficient between the variables X and Y is $r = 0.60$; if $x = 1.50$; $y = 2.00$
 $\bar{X} = 10$; $\bar{Y} = 20$; find the equation of the regression line Y on X.
15. How many ways 5 letter words can be formed from the letters in the word "EQUATIONS"?
16. State the Addition Theorem of Probability if the events are mutually exclusive.
17. State the axioms in the modern approach to probability.
18. Explain type I and type II error.
19. What do you mean by one tailed test and two tailed tests?
20. Distinguish between standard deviation and standard error.
21. State the term 'test of significance'.
22. What is stratified sampling?

(8x2=16 marks)

PART-C(Short Essay)

Answer any six questions. Each question carries 4 marks

23. State different types of sampling.
24. Explain Spearman's rank correlation and what are its advantages?
25. What are the important properties of regression coefficient?
26. Calculate correlation coefficient.
 $dx = 118; \quad dy = 93; \quad dx^2 = 556; \quad dy^2 = 309; \quad dxdy = 93; \quad n = 30.$
27. Two variables give the following data.
 $X^- = 20; \quad Y^- = 15; \quad x = 4; \quad y = 3; \quad r = +0.7.$ Obtain two regression equations and find out the most likely value of Y when X = 24.
28. A husband and wife appear in an interview for two vacancies in the same post. The probability of husband's selection is $1/7$ and that of wife's selection is $1/5$. what is the probability that:
a) both of them will be selected. b) only one of them will be selected. c) none of them will be selected.
29. A bag contains 8 red balls and 5 white balls. Two successive draws of 3 balls are made such that
i) balls are replaced before the second trial ii) balls are not replaced before the second trial
Find the probability that the first draw will give 3 white balls and second draw 3 red balls.
30. Investigate the association between the darkness of eye colour on father and son from the following data:

	Frequency
a) Father with dark eye and sons with dark eyes	100
b) Father with dark eye and sons not with dark eyes	158
c) Father not with dark eyes and sons with dark eyes	178
d) Father not with dark eyes and sons not with dark eyes	1564

Note; table value of chi-square for 1 degree of freedom at 5% level of significance is 3.84.

31. Explain hypothesis. What are different types of hypothesis?

(6x4=24 marks)

PART-D(Essay)

Answer any two questions. Each question carries 15 marks.

32. Calculate regression equations of X on Y and Y on X from the following data after taking deviations from

the following data :

X:	1	2	3	4	5	6	7	8	9
Y:	9	8	10	12	11	13	14	16	15

Also estimate Y when X =14

33. Calculate rank correlation coefficient from the following data:

X: 480 330 400 90 160 160 650 240 160 570

Y: 130 130 240 60 150 40 200 90 60 190

34. A committee of five persons is to be formed from a group of 8 boys and 7 girls. Find the probability that the committee consists of – a) at least one girl b) 3 boys and 2 girls.

35. What is probability? Explain different approaches to probability.

(2x15 = 30 marks)
