B.Com. DEGREE (C.B.C.S.S.) EXAMINATION, MAY 2016

Second Semester

Core Course IV—QUANTITATIVE TECHNIQUES FOR BUSINESS RESEARCH

(Common for Model I, Model II and UGC Sponsored B.Com. Degree Programmes)

[2013 Admission onwards]

Time : Three Hours   Maximum Marks : 80

Answers may be written **either** *in English* **or** *in Malayalam.*

Part A (Short Answer Questions)

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

1. What is Type I error ?

2. Define a statistical unit.

3. Distinguish between schedule and questionnaire.

4. State the Law of statistical regularity.

5. What are the different methods used for random selection of samples ?

6. What is perfect correlation ?

7. Write notes on repression lines.

8. What are complementary events ?

9. What is a probability distribution ?

10. What is pure research ?

(10 × 1 = 10)

Part B (Brief Answer Questions)

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

11. What precautions are taken before depending on secondary data ?

12. Write short notes on stratified sampling and quota sampling.

13. Distinguish between positive and negative correlation.

14. What are the properties of regression coefficients ?

Turn over

15. A coin is tossed four times. What is the probability that all the four are heads ?

16. State 'Multiplication theorem' of probability with an example.

17. Explain Alternative Hypothesis.

18. Explain the term Degrees of freedom.

19. State the conditions under which binomial probability model is appropriate.

20. What are the uses of Chi-square test ?

21. What is meant by standard error ?

22. How many words can be formed with the letters of the word RAKESH ?

$(8 \times 2 = 16)$

Part C (Short Essay Type Questions)

Answer any six questions.
Each question carries 4 marks.

23. Describe, in brief, important parts of a research report.

24. Explain the procedure of hypothesis testing.

25. List the main properties of the normal distribution.

26. What is Chi-square distribution ? State the conditions for the validity of Chi-square test.

27. A bag contains 8 white and 4 red balls. Five balls are drawn at random. What is the probability that 2 of them are red and 3 white ?

28. What is meant by census method of data collection ? Why is census method more reliable than sampling ?

29. Calculate Spearman's coefficient of correlation for the following data :

X	:	53	98	95	81	75	61	59	55
Y	:	47	25	32	37	30	40	39	45

30. You are given the following data :

	X	Y
Arithmetic mean	36	85
Standard deviation	11	8

Correlation coefficient between x and y is 0.66. Find the two regression equations.

31. In a firm 4 posts fall vacant and 35 candidates apply for the posts. In how many ways can a selection be made ?

   (i) If one particular candidate is always included.

   (ii) If one particular candidate is always excluded.

                                                                  $(6 \times 4 = 24)$

Part D (Long Essays)

Answer any two questions.
Each question carries 15 marks.

32. The following table gives the result of the S.S.L.C. Examination of a town held in March 1995 :

Age of candidates	:	13	14	15	16	17	18	19	20	21
Percentage of failure	:	39	41	43	34	37	39	49	47	55

   Calculate the coefficient of correlation and estimate probable error. From the result can you assert that failure is correlated with the age ?

33. From the following data, calculate the coefficient of correlation and obtain the lines of regression. Estimate Y corresponding to X = 6.2 :

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

34. In an experiment on immunization of cattle from tuberculosis, following results were obtained :

	Affected	Not affected
Inoculated	12	26
Not inoculated	16	6

   Calculate Chi-square and discuss the effect of vaccine in controlling susceptibility to tuberculosis. (5 % value of Chi-square for one degree of freedom = 3.84).

35. Briefly describe the different steps involved in a research process.

                                                                  $(2 \times 15 = 30)$