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B.Com. DEGREE (C.B.C.S.S.) EXAMINATION, MAY 2017

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

Part A (Short Answer Questions)

Answer all questions.

Each question carries 1 mark.

1. What do you mean by exhaustive events ?
2. Explain permutation.
3. What do you mean by imperfect correlation ?
4. Distinguish between linear and non-linear correlation.
5. What do you mean by exploratory research ?
6. Explain null hypothesis.
7. What do you mean by statistical inference ?
8. Explain popular report.
9. What is Scatter diagram ?
10. What is linear regression ?

(10 × 1 = 10)

Part B (Brief Answer Questions)

Answer any eight questions.

Each question carries 2 marks.

11. Explain Bayesian Theorem of probability.
12. Distinguish between correlation and regression.
13. Write a short note on multi-stage sampling and sequential sampling.
14. Distinguish between sampling and non-sampling error.
15. What are the merits associated with interview method ?

Turn over

16. What is non-parametric test ? Give examples.
17. Distinguish between point estimation and interval estimation.
18. Explain Yate's correction.
19. What are the essentials of a good sample ?
20. Explain Law of Inertia of large numbers.
21. In how many ways can the letters of 'Salem' be arranged ?
22. Find the chance of getting more than 3 in one throw of cubic die marked 1 to 6 on its six faces.

(8 × 2 = 16)

Part C (Short Essay Type Questions)

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

23. What are the advantages and disadvantages of Karl Pearson's method of correlation ?
24. Analyse the merits and demerits of observation method.
25. Mention the different types of research report, distinguishing technical report and popular report.
26. Calculate Spearman's rank correlation coefficient.

Marks in Maths :	55	45	53	37	38	19	31	23	16
Marks in Statistics :	57	61	49	51	31	33	46	38	43

27. You are given the following data :—

	Advertising (in lakhs)	Sales (in lakhs)
Arithmetic mean ..	20	100
Standard deviation ..	2	12

Correlation coefficient between advertising and sales is 0.8. Find the two regression equations.

28. A committee consisting of a President, a Vice- President and a Secretary is to be formed out of 21 members. In how many ways this can be done ?
29. X and Y are two students who work on a problem independently. The probability that X will solve it is $\frac{3}{4}$ and the probability that Y will solve it is $\frac{2}{3}$. What is the probability that the problem will be solved ?
30. What is the necessity of defining a research problem ?
31. Distinguish between research methods and research methodology.

(6 × 4 = 24)

$$\frac{3}{4} + \frac{2}{3}$$

$$\frac{9}{12} + \frac{8}{12} = \frac{17}{12}$$

$$\frac{3}{4} - \frac{2}{3}$$

$$\frac{9}{12} - \frac{8}{12}$$

$$\frac{1}{12}$$

Part D (Long Essays)

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

32. Find the correlation coefficient between sales and expense (Rs. 000's) of following 10 firms and also estimate the probable error. Is there any relation between sales and expenses ?

Sales : 51 51 56 61 66 66 66 61 61 61

Expenses : 12 14 15 17 17 17 16 15 14 14

33. The following data shows the maximum and minimum temperature on a certain day at 10 important cities located throughout India.

Maximum temperature : 30 24 26 14 29 31 25 33 34 36

Minimum temperature : 9 4 8 7 9 21 11 8 10 9

- (i) Determine the two lines of regression.
(ii) Determine the coefficient of correlation.
(iii) Determine the maximum temperature when the minimum temperature is 13.
34. From the following data find out whether there is any association between passing in The exam and studying in day classes.

	Passed	Failed
Day classes	20	10
Evening classes	30	40

(5 % value of Chi-square for one degree of freedom = 3.84).

35. What do you mean by research ? Explain its significance in modern times.

(2 × 15 = 30)