FOURTH SEMESTER B.Com. DEGREE EXAMINATION, APRIL 2018

(CUCBCSS—UG)

BCM 4C 04—QUANTITATIVE TECHNIQUES FOR BUSINESS

Time : Three Hours

Maximum : 80 Marks

Part A

Answer all questions.
Each question carries 1 mark.

1. Two events are said to be independent if :

    (a) Each outcome has equal chance of occurrence.

    (b) There is the common point in between them.

    (c) One does not affect the occurrence of the other.

    (d) Both events have only one point.

2. If $P(A) = 0.5$, $P(B) = 0.3$ and the events A and B are independent then $P(A \cup B)$ is :

    (a) 0.8.   (b) 0.15.

    (c) 0.08.   (d) 0.015.

3. For Bernoulli distribution with probability p of a success and q of a failure, the relation between mean and variance that hold is :

    (a) mean < variance.   (b) mean > variance.

    (c) mean = variance.   (d) mean <.

4. A hypothesis may be classified as :

    (a) Simple.   (b) Composite.

    (c) Null.   (d) All the above.

5. t - distribution ranges from :

    (a) $-\infty$ to 0.   (b) 0 to ∞.

    (c) $-\infty$ to ∞.   (d) 0 to 1.

Fill in the blanks :

6. The probability of an impossible event is ———.

7. The mean and variance are ——— in Poisson distribution.

Turn over

8. When μ = 0 and σ = 1 the normal distribution is called ———.

9. When the hypothesis is false and the test accepts it this is called ———.

10. The variance of a binomial distribution is 2. Its standard deviation is ———.

(10 × 1 = 10 marks)

Part B

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

11. What is Complementary events ?

12. What is Sampling Distribution ?

13. What is Alternative Hypothesis ?

14. What is Coefficient of Determination ?

15. What is Addition theorem on probabilities for mutually exclusive events ?

16. What are the uses of Probable Error ?

17. What is variance ?

18. What is zero correlation ?

19. What is standard error ?

20. What are the conditions for binomial distribution ?

(8 × 2 = 16 marks)

Part C

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

21. What are the different methods for measuring coefficient of correlation ?

22. What are theoretical distribution ? Explain its classification.

23. What is hypothesis ? What are the different types of hypothesis ?

24. Explain merits and demerits of standard deviation?

25. 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 takes as 7 instead of 9. Find the correct result.

26. Two sets of candidates are competing for the positions on the Board of directors of a company. The probabilities that the first and second sets will win are 0.6 and 0.4 respectively. If the first set wins, the probability of introducing a new product is 0.8, and the corresponding probability if the second set wins is 0.3. What is the probability that the new product will be introduced ?

27. Eight coins are tossed simultaneously. Find the probability of getting at least six heads.

28. You are given the following data about advertising and sales :

	Advertisement (in Lakhs)	Sales (in Lakhs)
Mean ...	10	90
Standard Deviation ...	3	12

The coefficient of correlation is 0.8. Calculate two regression lines.

(6 × 4 = 24 marks)

Part D

Answer any two questions.
Each question carries 15 marks.

29. What is correlation ? Explain the various degrees of correlation.

30. A test was given to five students taken any at random from the fifth class of three schools of a town. The individual scores are :

School I	:	9	7	6	5	8
School II	:	7	4	5	4	5
School III	:	6	5	6	7	6

Carry out the analysis of variance.

31. The following table gives the result of the SSLC examination of a town held in March 1996 :

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

Calculate co-efficient of correlation and estimate probable error and standard error.

(2 × 15 = 30 marks)