FOURTH SEMESTER B.Com./B.B.A. DEGREE EXAMINATION, APRIL 2020

(CUCBCSS—UG)

B.Com.

BCM 4C 04—QUANTITATIVE TECHNIQUES FOR BUSINESS

(2017 Admissions)

Time : Three Hours   Maximum : 80 Marks

Part A

Answer all questions.
Each question carries 1 mark.

Choose the correct answer :

1. Binomial distribution has ———————— (number of) parameters.

   (A) Three.   (B) Two.

   (C) One.   (D) Four.

   (E) None.

2. Each trial in Binomial distribution has :

   (A) One Outcome.   (B) Two Outcome.

   (C) Three Outcome.   (D) Four Outcome.

3. The mean of binomial distribution is :

   (A) npq.   (B) np.

   (C) $\sqrt{npq}$.   (D) $\sqrt{np}$.

   (E) $\sqrt{nq}$.

4. Which of the following mentioned standard probability density functions is applicable to discrete Random Variables ?

   (A) Gaussian Distribution.   (B) Poisson Distribution.

   (C) Rayleigh Distribution.   (D) Exponential Distribution.

5. Mutually Exclusive events :

    (A) Contain all sample points.

    (B) Contain all common sample points.

    (C) Does not contain any sample point.

    (D) Does not contain any common sample point.

Fill in the blanks :

6. A table with all possible value of a random variable and its corresponding probabilities is called ——————.

7. Previous probabilities in Bayes Theorem that are changed with help of new available information are classified as ——————.

8. The weight of persons in a state is a —————— variable.

9. In a Binomial Distribution, if p, q and n are probability of success, failure and number of trials respectively then variance is given by ——————.

10. It is suitable to use Binomial Distribution only for —————— values of 'n'.

(10 × 1 = 10 marks)

Part B

*Answer any **eight** questions.*

Each question carries 2 marks.

11. What is quantitative technique ?

12. Define Karl Pearson's co-efficient of correlation.

13. Briefly explain multiplication theorem of probability.

14. What is Baye's Theorem ?

15. Define Poisson distribution.

16. What is a standard normal curve ?

17. What is statistical inference ?

18. What is one tailed test ?

19. Define z-test.

20. What is standard error ?

(8 × 2 = 16 mark

Part C

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

21. What are the properties of normal distribution ?

22. Explain the concept of non-parametric test.

23. What are the errors in hypothesis testing ?

24. 2 fair 6-sided dice are rolled. What is the probability that the sum of these dice is 10 ?

25. Bring out the fallacy in the following "The mean of a Binomial distribution is 5 and SD is 3".

26. It is known from past experience that in a certain plant there are on average 4 industrial accidents per month. Find the probability that in a given year there will be less than 3 accidents. Assume Poisson distribution.

27. The per acre yield of crop in a particular area is observed to follow a normal distribution with mean 15 quintals and S.D. of 5 quintals. Find the proportion of the area yielding at least 25 quintals.

28. Prove that the sum of the probabilities of all possibilities in two independent events amounts to certainty.

(6 × 4 = 24 marks)

Part D

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

29. Calculate Spearman's co-efficient of correlation between the marks assigned to ten students by Judges X and Y in a certain competitive test as shown :

S. No.	:	1	2	3	4	5	6	7	8	9	10
Marks by Judge X	:	52	53	42	60	45	41	37	38	25	27
Marks by Judge Y	:	65	68	43	38	77	48	35	30	25	50

30. Twelve dice were thrown 4096 times. Each 4, 5 or 6 spot appearing was considered to a success, while a 1, 2 or 3 spot was a failure. Calculate the theoretical frequencies for 0, 1, 2, ... 12 successes.

31. A stenographer claims that she can take dictations at the rate of more than 120 words per minute. Of the 12 tests given to her she could perform an average of 135 words with a standard deviation of 40. Is her claim valid ? (α = 0.01).

(2 × 15 = 30 marks)