

**FOURTH SEMESTER B.Com. DEGREE EXAMINATION
APRIL 2017**

(CUCBCSS-UG)

Complementary Course

BCM 4C 04—QUANTITATIVE TECHNIQUES FOR BUSINESS

Time : Three Hours

Maximum : 80 Marks

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

Choose the correct answer :

1. Mean of Binomial distribution is :

- (a) np . (b) npq .
(c) n . (d) \sqrt{npq} .

2. If the occurrence of one event prevents the possibility of occurrence of others, such events are known as :

- (a) Exhaustive events. (b) Uncertain events.
(c) Mutually exclusive events. (d) Independent events.

3. When the amount of change in one variable leads to a constant ratio of change in the other variable, correlation is said to be :

- (a) Linear. (b) Non-linear .
(c) Positive. (d) Negative.

4. Degrees of freedom for variance within samples is :

- (a) $k - 1$. (b) $N - k$.
(c) $N - 1$. (d) None of the above.

5. The distribution which is known as 'the law of improbable events' :

- (a) Poisson distribution. (b) Binomial distribution.
(c) Normal distribution. (d) All the above.

Fill in the blanks :

6. Rejecting a null hypothesis when it is true is called _____ error.
7. Normal distribution was discovered by _____.

Turn over

8. The test applied for large samples is _____.
9. The tendency of two or more groups or series of items to vary together directly or inversely is called as _____.
10. In case of independent events $p(A \cap B) =$ _____.

(10 × 1 = 10 marks)

Part B*Answer any eight questions from the following.**Each question carries 2 marks.*

11. What is Rank correlation?
12. Define Binomial distribution.
13. When Poisson distribution is treated as a limited form of binomial distribution?
14. What is standard normal variate?
15. What are statistic and parameter?
16. Explain standard error.
17. What is meant by analysis of variance?
18. What you mean by non-parametric tests?
19. When the Yates correction is used in χ^2 test?
20. What is statistical hypothesis?

(8 × 2 = 16 marks)

Part C*Answer any six questions from the following..**Each question carries 4 marks.*

21. Explain the differences between correlation and regression.
22. $P(A) = 1/13$, $P(B) = 1/4$ and $P(A \cup B) = 4/13$. Find $P(A \cap B)$.
23. A car hire firm has two cars, which it hires out day by day. The number of demands for car on each day is distributed as a Poisson variate with mean 1.5. Calculate the proportion of days on which (i) neither car is used ; (ii) Some demand is refused.
24. Explain the uses of χ^2 test.
25. A sample of size 400 was drawn and the sample mean was found to be 99. Test whether this sample could have come from a normal population with mean = 100 and S.D = 8 at 5% level of significance.
26. Explain the properties of Normal curve.

27. Four dice are thrown 162 times. The occurrence of 2 or 3 is considered as success. In how many throws do you expect (i) exactly 2 success ; (ii) at least 1 success.
28. A bag contains 8 balls identical except for colour of which 5 are red and 3 white. A man draws 2 balls at random one after another without replacement. What is the probability that one of the ball drawn is white and the other red? What would be the probabilities if ball drawn were replaced before another ball is drawn?

(6 × 4 = 24 marks)

Part D*Answer any two questions from the following.**Each question carries 15 marks*

29. The following figures relate to the number of units sold in 5 different areas by the sales personnel of a firm. Test whether all the 4 sales personnel's were performed equally.

Area	Salesman (Units sold)			
	A	B	C	D
1	80	100	95	70
2	82	110	90	75
3	88	105	100	82
4	75	90	80	65
5	85	115	105	88

30. Fit a Binomial distribution to the data relating to the number of seeds germinating out of 10 damp filters for 80 sets of seeds :

No. of seeds germinated	...	0	1	2	3	4	5	6	7	8	9	10
No. of sets	...	6	20	28	12	8	6	0	0	0	0	0

31. The sales data of 6 shops before and after a special promotional campaign are given below :

Shops	Sales (before)	Sales (after)
	Rs. in 000's	Rs. in 000's
A	42	47
B	50	60
C	48	55
D	53	58
E	28	32
F	31	38

Can the campaign be judged as success?

(2 × 15 = 30 marks)