FOURTH SEMESTER B.Com. DEGREE EXAMINATION, APRIL 2021

(CUCBCSS-UG)

CC15U BC4 C04/CC16U BC4 C04/CC17U BC4 C04
QUANTITATIVE TECHNIQUES FOR BUSINESS

(Commerce - Complementary)

(2015 to 2018 Admission – Supplementary/Improvement)

Time: Three Hours   Maximum: 80 Marks

PART A

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

Fill in the blanks:

1. Normal distribution is a limiting case ------------- distribution

2. AU A^I equal to -------------

3. Chi square test was developed by -------------

4. The probability of a sure event is -------------

5. The normal curve with zero mean and one standard deviation is termed as -------------

Choose the correct answer:

6. $5C_0$ is equal to -------------

   a) 1   b) 0   c) 10   d) none of these]

7. The % of area under normal curve covered by mean $\pm$ 1 standard deviation is -------------

   a) 34.135   b) 95.45   c) 68.27   d) 47.725

8. The probability of an impossible event is -------------

   a) 1   b) 0   c)1/2   d) unlimited

9. The relation between Mean and variance of Binomial distribution is -------------

   a) Mean= variance   b) mean< variance   c) mean > variance   d) mean $\geq$ variance]

10. If A and B are two mutually exclusive events; then probability of (A∩B) is equal to

    a) P(AB)   b) P(A+B)   c) P(A) + P (B)   d) P(AB)/P(B)

(**10 × 1 = 10 Marks**)

PART B

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

11. Distinguish between parameter and statistic.

12. What is ANOVA?

13. What is Type II error?

14. What is the level of significance?

15. What is standard error?

16. Define random variable.

17. What do you mean by two tailed test?

18. What are the parameters of binomial distribution?

19. P(A)=0.4, P(B)=0.6, find P($A^l \cap B^l$)

20. What is the chance that a leap year will contain 53 Monday?

(8 × 2 = 16 Marks)

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

21. A bag contains 12 red and 8 white balls. If 8 balls are drawn at random find the probability that among them there will be exactly 5red and 3 white balls.

22. If a keyboard operator averages two errors per page of newsprint, and if these errors follow Poisson process, what is the probability that exactly four errors will be found on a given page?

23. Chi square test is a test of homogeneity, goodness of fit and test of independence. Explain?

24. Explain the uses of quantitative techniques in business

25. Assuming that ½ of the population is vegetarian so that choice of an individual being a vegetarian is ½. Assuming that 100 investigators can take a sample of 10 individuals each to see whether they are vegetarians, how many investigators would you expect to report that 4 people or less were vegetarians.

26. It is claimed that a random sample of 100 tyres with mean life of 15269 km is drawn from a population of tyres which has a mean life of 15200 km and S.D of 1248 km. To test the validity of the claim.

27. The weekly wages of 1000 workmen are normally distributed around a mean of Rs. 70 and with a S.D of Rs.5. Estimate the number of workers whose weekly wages will be between Rs.70 and Rs.72.

28. The probability that a doctor will diagnose a particular disease correctly is 0.6. The probability that a patient will die by his treatment after correct diagnosis is 0.4 and the probability of death by wrong diagnosis is 0.7. A patient of the doctor who had the disease died. What is the probability that his disease was not correctly diagnosed?

(6 × 4 = 24 Marks)

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

29. In a diet survey the following results were obtained.

	Hindus	Muslims
Families taking tea	15	25
Families not taking tea	85	75

Is there any significant difference between the communities in the matter of tea taking?

30. The Indian oil Ltd appoints 4 salesmen P, Q, R and S and records their sales performance in the three seasons as follows

Seasons	Salesmen			
	P	**Q**	**R**	**S**
Summer	29	57	68	46
Winter	31	55	52	54
Monsoon	21	67	49	58

State there is a significant difference in the mean sales effected by the 4 salesmen.

31. Following information is obtained from the records of a business organization:

Sales (in '000):	91	53	45	76	89	95	80	65
Advertisement Expense (In '000)	15	8	7	12	17	25	20	13

1. Obtain the two regression equations and
2. Estimate the advertisement expenditure for a sale of Rs. 1,20,000

(2 × 15 = 30 Marks)

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