B.C.A DEGREE END SEMESTER EXAMINATION: NOVEMBER 2023

SEMESTER **3: MOBILE APPLICATIONS AND CLOUD TECHNOLOGY**

COURSE: **19U3CRBCA7: BASIC STATISTICS**

(For Regular -2022 Admission and Improvement/Supplementary - 2021/2020/2019/2018/2017/2016 Admissions)

Time: Three Hours   Max. Marks: 75

PART A

Answer All (1 mark each)

1. What is Phenomenon of Statistical Regularity?
2. In a random experiment of rolling a die and observing the number shown up, let A be the Event "odd number showing up". Then A' =?
3. For the following list, n = 19. Find the median. 24, 25, 28, 31, 33, 33, 36, 42, 42, 48, 51, 57, 57, 68, 75, 79, 79, 79, 85
4. If the range and the smallest value of a set of data are 36.8 and 13.4 respectively, then find the largest value.
5. Define Laspeyer's Price index numbers.
6. Define quantity index numbers.
7. Find the mean of the first six multiples of 4.
8. Average calculated in which all the items are not equally important is called_____
    a) simple average   b) weighted average
    c) combined arithmetic mean   d) None of these
9. What are regression equators?
10. Calculate the range of the following data.

Income	400-450	450-500	500-550	550-600	600-650
No. of workers	8	12	30	21	6

(1 x 8 = 8)

PART B

Answer any 8 (2 marks each)

11. If the variables x and y are satisfying the relation ax+by+c =0. Show that the correlation between x and y is -1 or +1, according as a and b are of the same sign or not.
12. A coin is thrown 3 times .What is the probability that atleast one head is obtained?
13. Using statistical definition of probability show that P(A') = 1- P(A)
14. What is unit test?
15. Find the range of the following data. Also find its coefficient measure.

    Class: 5-15   15-25   25-35   35-45
    Freq: 5   15   12   4

16. In a firm a unit work is completed by A, B, C , D, and E in 4 hours, 5 hours, 6 hours, 8 hours and 10 hours respectively. What is the average number of units of work completed per hour?

17. What are the merits and demerits of Range?
18. What are the methods for finding trends?
19. Fifteen people sit around a circular table. What are odds against two particular people sitting together?
20. Give the merits and demerits of arithmetic mean.
21. Calculate the median for the following data:

Class:	0-10	10-20	20-30	30-40	40-50	50-60
Frequency:	6	10	15	20	12	7

22. Give the limitations of Index numbers. **(2 x 8 = 16)**

PART C
Answer any 5 (5 marks each)

23. Distinguish between correlation and regression.
24. What is Box- Whisker Plot?
25. Obtain the first and third quartiles for the following data.

Mid value of the classes:	5	15	25	32	45	55	65
Frequency:			5	9	20	31	18	11	6

26. Obtain the 7th deciles and 95th percentile for the following 100 observations.

Class:	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Freq:	7	13	18	22	17	13	6	4

27. A couple has two children. Use Baye's theorem to find the probability that both are girls if the eldest is a girl.
28. Explain the uses of cost of living index numbers.
29. State and prove Baye's theorem. **(5 x 5 = 25)**

PART D
Answer any 2 (12 marks each)

30. Define weighted harmonic mean. A trip which entails travelling 900 kms by train at an average speed of 60 kms\hr. And the next 300 kms by boat at an average speed of 25 kms\hr. Then 400 kms by plane at 350 kms\hr speed , and finally 15 kms by taxi at a speed of 25 kms\hr. What is the average speed of the entire journey?

31. Calculate 4 yearly moving average for the following data:

Year	2001	02	03	04	05	06	07	08	09	10
Production	464	515	518	467	502	540	557	571	586	612

32. Two samples of sizes 40 and 50 respectively have the same mean 53 but different standard deviations 19 and 8 respectively. Find the S.D of the combined sample of size 90.

33. i) Describe classical definition of probability.
    ii) A committee of size 5 is to be selected from a group of 6 men and 9 women. If the selection is made randomly, what is the probability that the committee will consist of 3 men and 2 women?

    (12 x 2 = 24)