

SECTION A

I. Choose the correct answer from the choices given. 5x1=5

1. The study of human population is called
(a) Biometry (b) Stylometry (c) Demography (d) Econometrics
2. The correction factor of the class intervals: 10-19,20-29,30-39 is
(a) 0.5 (b) 1 (c) 9 (d) 10
3. The algebraic sum of deviations of a given set of observations taken from their mean is
(a) 1 (b) 2 (c) 3 (d) 0
4. Probability of null event is -
(a) -1 (b) 0 (c) 1 (d) none of the above
5. If $E(X)=5$, the value of $E(2X+4)$ is
(a) 6 (b) 5 (c) 14 (d) 10

II. Fill in the blanks by choosing appropriate answers from those given in the brackets.

(deciles, captions, discrete, 0.3, stubs, equal)

5x1=5

6. In a table row headings are called _____.
7. Measures which divide the data into 10 equal parts is known as _____.
8. In the symmetrical distribution mean, median and mode are _____.
9. If the probability of hitting the target is 0.7, then the probability of missing the target is _____
10. A random variable which assumes only specified values in its range is called a _____ random variable.

III. Match the following

5x1=5

- | | |
|------------------------------------|----------------------------|
| 11. a) Direct personal observation | i) Geometric mean |
| b) Pie diagram | ii) Peakedness |
| c) Kurtosis | iii) Secondary data |
| d) Average growth rate | iv) $P(A)P(B)$ |
| e) $P(A \cap B)$ | v) Two dimensional diagram |
| | vi) Primary data |

IV. Answer the following questions.

5x1=5

12. What is one dimensional diagram?
13. Find the G.M of 1,5 and 25.
14. What is the relationship among median, Q_2 , D_5 and P_{50} .
15. Define Extrapolation.
16. If $V(X)=4$, what is the value of $V(-X/2)$?

SECTION-B

V. Answer any five of the following questions.

5x2=10

17. Define discrete variable. Give an example.
18. Mention the two sources of secondary data.

19. If $n_1=10, n_2=20, \bar{X}_1=34$ and $\bar{X}_2=37$, find combined A.M.
20. Find the coefficient of range for the following data:
12,10,8,15,17,20,5,6,4,12
21. If $\gamma = 0.8$ and $b_{xy}=0.4$, find b_{yx} .
22. What is the difference between coefficient of correlation and association of attributes?
23. If $P(A \cap B) = 1/3$ and $P(B) = 2/3$. Find $P(A/B)$.
24. If X is a random variable and a is a constant then prove that $E(aX) = aE(X)$.

SECTION –C

VI. Answer any four of the following questions.

4x5=20

25. Mention the functions of statistics.
26. What are the guidelines for the construction of questionnaire?
27. Following are the marks obtained by the students in a certain test. Prepare a frequency distribution with an interval of 10 marks each using inclusive class Intervals.
37,49,54,51,37,15,12,33,23,25,18,35,33,27,45,42,45,55,69,63,46,29,18,37,46,59,29,35,47,65
28. Draw a blank table to showing the distribution of PU students according to
i. Classes : I PUC, II PUC
ii. Faculty : Arts, Science, Commerce
iii. Year : 2022, 2023, 2024
29. The following data relates to the expenditure of a family per month. Construct a pie Chart.

Items	Expenses (in Rs.)
Food	3000
Clothing	1500
Rent	900
Education & medicine	500
Others	600

30. 2000 candidates appeared for a competitive examination. 400 came out successful. 350 had attended a coaching class and of these 200 had come out successful. Estimate the utility of coaching classes, using Compute Yule's coefficient of Association.
31. Using binomial expansion method of interpolation find the probable production for the year 2022.

Year	2017	2019	2021	2023	2025
Production(000' tons)	100	150	-	175	200

VII. Answer any TWO of the following questions.

2x5=10

32. Draw a histogram for the following data and hence locate the value of mode graphically.

Age (in years)	20-25	25-30	30-35	35-40	40-45	45-50	50-55
No. Of persons	3	12	20	16	8	5	2

33. Calculate Harmonic mean for the data given below.

Wages (in 000's)	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39
No. of employees	4	8	10	6	7

34. If the two regression equations are $3x + 5y = 3$ and $4x + 3y = 4$, find mean values of x and y . Also calculate γ .

35. In a hostel 60% of students drink tea, 50% of students drink coffee and 20% of students drink both tea and coffee. Find the probability that a randomly selected student drinks either tea or coffee.

SECTION-D

VIII. Answer any TWO of the following questions.

2x10=20

36. Compute the coefficient of skewness based on quartiles for the following data and interpret.

Profit (lakh. Rs.)	Below 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80	80 – 90	90 & above
No.of companies	4	8	18	30	15	10	8	7

37. Calculate coefficient correlation between marks obtained by the batch of 95 Students in Accountancy and Statistics as given in the following table and interpret.

Marks in Statistics	Marks in Accountancy				
	5 - 15	15 - 25	25 - 35	35 - 45	45 - 55
0 – 10	2	5	3	-	-
10 – 20	1	8	10	-	-
20 – 30	-	5	22	10	1
30 – 40	-	-	2	9	2
40 - 50	-	1	8	6	-

38. a) For a university cricket team 2 players are to be selected from a certain college among 5 batsmen, 3 bowlers and 2 wicket-keepers. Find the probability of selecting

(i) a batsman and a wicket-keeper (ii) bowlers

b) Find the value of 'k' and the variance of following probability distribution.

X	-2	-1	0	1	2	3
p(X)	0.1	0.1	0.2	2k	0.3	0.1

SECTION-E

(For Visually challenged students only)

29. Write the procedure of constructing a pie diagram.

32. Write the procedure of constructing Histogram.