JAIN COLLEGE V V Puram **1st PUC Mock paper– Jan. 2025**	**Course:** 1st year PUC **Subject:** Statistics **Max. Marks:** 80 **Duration:** 3:00 hour

Instructions

(1) Graph sheets and statistical tables will be supplied on request.

(2) Scientific calculator may be used.

(3) All working steps should be shown clearly.

(4) Section – A should be written in the beginning of the answer booklet.

SECTION - A

I. Choose the correct answer from the choices given: **(5x1 = 5)**

1. Who defined STATISTICS as "The science of counting"?
   a) R.A. Fisher b) A. L. Bowley c) Horace Secrist d) Boddington
2. Classification of statistical data according to time is called
   a) Quantitative classification b) Qualitative classification
   c) Chronological classification d) Geographical classification
3. The GM of 2,4,8, is
   a) 4 b)2 c)8 d) 6
4. If a fair die is rolled once, the probability of getting an even number is
   a) 0.25 b) 0.5 c) 0.1 d) 1
5. If V(X) = 5 the value of V(-X) is
   a) 6 b)-5 c) 0 d) 5

II. Fill in the blanks by choosing the appropriate word from those given in the brackets. **(5 x1 =5)**
(100, 0.8, deciles, 10, open-end class, equal)

6. In a class, if the lower or upper limit of the class is not specified, such a class is called _____
7. Measures which divide the data into ten equal parts are known as _____
8. In a symmetric distribution, mean, median and mode are _____.
9. If $P(A^I) = 0.2$, then the value of P(A) is _____.
10. The value of E(10) is _____.

III. Match the following **(5 x1 = 5)**

11.

A	B
a. Mailed Questionnaire	i. 0
b. Ogives	ii. mesokurtic distribution
c. $\sum(X - \bar{X})$	iii. primary data
d. $\beta_2 = 3$	iv 1
e. The probability of sure event	v. cumulative frequency curves
	vi. platykurtic distribution

IV. Answer the following questions. **(5 x 1 = 5)**

12. Write an example for one dimensional diagram.
13. Which average is suitable to find the average speed in the 4 x 100 relay race?
14. For a data, if $D_5 = 50$, write the value of P_{50}.
15. Write any one assumption of Interpolation and Extrapolation.
16. Define probability distribution of a random variable.

SECTION - B

V. Answer any FIVE of the following questions. (5 x 2= 10)

17. Define variable and attribute.
18. Mention the sources of secondary data.
19. The arithmetic mean and median of slightly skewed distribution are 11cm and 11.7 cm respectively. Find the mode of the distribution.
20. If mean = 20, S.D. = 5. Find C.V.
21. If $\sum(X - \bar{X})^2 = 160$, $\sum(Y - \bar{Y})^2 = 438$ and $\sum(X - \bar{X})(Y - \bar{Y}) = 240$, find γ_{xy}.
22. Mention any two methods of studying association of attributes.
23. If $P(A) = \frac{1}{10}$, $P(B) = \frac{1}{5}$ and $P(A \cap B) = \frac{1}{20}$, then find $P(A \cup B)$.
24. If $E(X) = 4$ & $E(X^2) = 25$, find $V(X)$.

SECTION - C

VI. Answer any FOUR of the following questions. (4 x 5 = 20)

25. What are the limitations of statistics?
26. Mention the methods of collection of primary data and explain any two.
27. Following are the weights of 50 college students.

    42 62 46 54 41 37 54 44 32 45 47 50 58 49 51 42 46 37 42 39 54 39 51 58 47
    64 43 48 49 48 49 61 41 40 58 49 59 57 37 34 56 38 45 52 46 40 63 41 51 41

    Prepare a frequency distribution with unequal width class intervals 30-35, 35-45, 45-55, 55-60 and 60-65.
28. Draw a blank table to show the population of a town according to:
    (i) Sex: men, women
    (ii) Age group (in years): (0-25), (25-50), (50 & above)
    (iii) Periods: 2018, 2019, 2020.
29. Percentage breakup of the cost of construction of a house in Bengaluru (Excluding land cost) is given below: Labour: 20%, Bricks: 12%, Cement: 20%, Steel: 15%, Wood: 13%, Supervision: 15%, other expenses: 5%. Construct a pie diagram.
30. In a co-education institution out of 200 students, 150 were boys. They wrote an examination and it was found that 120 passed. 10 girls failed. Is there any association between sex and success in examination?
31. Use the binomial expansion method to estimate the index number for 2024.

Year	2020	2021	2022	2023	2024
Value	74	78	84	92	-

VII. Answer any TWO of the following questions. (2 x 5 = 10)

32. Draw less than ogive curve from the following data and determine median.

Class Interval	0-10	10-20	20-30	30-40	40-50
Frequency	5	11	21	16	10

33. Calculate the value of H.M. for the following distribution.

Marks	0-10	10-20	20-30	30-40	40-50	50-60
No. of students	4	6	20	32	18	10

34. Following are the details of marks scored by students in Kannada and English examination.

	Kannada	English
Mean	40	50
variance	100	256

Coefficient of correlation is 0.3.

Estimate the scores in English when the score in Kannada is 50.

35. Two cards are drawn from a pack of 52 playing cards. What is the probability that they are
i) Blacks ii) Queens

SECTION - D

VIII. Answer any TWO of the following questions. **(2 x 10 = 20)**

36. Calculate Bowley's coefficient of skewness for the following data.

C.I	100-200	200-300	300-400	400-500	500-600
f	4	5	12	7	4

37. Calculate Karl Pearson's coefficient of correlation from the data given below.

Marks	Age in years				
	18	19	20	21	22
0-5	-	-	-	3	1
5-10	-	-	-	3	2
10-15	-	-	7	10	-
15-20	-	5	4	-	-
20-25	3	2	-	-	-

38. a) A husband and his wife attended an interview. The probability of selecting husband is $\frac{2}{5}$ and that of wife is $\frac{1}{2}$. Find the probability of selecting at least one of them.

b) The probability of person hitting a target is $\frac{2}{3}$. If he hits the target, he gets Rs.100, otherwise he loses Rs.10. Find his expectation.

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