

I PUC STATISTICS: SYLLABUS & QUESTIONS BLUE PRINT-2022

Name of units	Questions					Total Questions	Total Marks	
	VSA	SA	LA	ET	LA			
I	Introduction to Statistics and some basic concepts	2	2	1	-	-	5	11
II	Organization of data	2	2	2	-	-	6	16
III	Classification and Tabulation of data	2	2	1	-	1	6	16
IV	Diagrammatic and graphical representation of data	2	2	2	-	1	7	21
V	Analysis of univariate data	2	2	2	3	1	10	51
VI	Analysis of bivariate data	2	2	2	1	-	7	26
VII	Association of attributes	-	1	1	-	-	2	7
VIII	Interpolation and extrapolation	1	-	1	-	-	2	6
IX	Theory of probability	1	1	2	a	1	5+	18+
X	Random variable and Mathematical Expectation	1	1	1	b	1	4+	13+
Total Questions		15	15	15	5	5	55	195

Question Type	Marks
VSA : Very Short Answer	1
SA : Short Answer	2
LA : Long Answer	5
ET : Essay Type	10

Note: One 10 mark question (i.e., Question a and b) is to set either combination of units IX and X or from unit X.

DEPARTMENT OF PRE-UNIVERSITY EDUCATION
MODEL QUESTION PAPER - 2022
I PUC
SUBJECT: STATISTICS (31)

[Total No. of questions: 55]

Time: 3Hrs. 15Mins.

Max. Marks: 100

Note: 1. Statistical table and graph sheets will be supplied on request.
2. Scientific calculators may be used.
3. All working steps should be clearly shown.

Section – A

- I. Answer **any ten** of the following questions. **10 × 1 = 10**
1. Give Boddington's definition of Statistics.
 2. Define an attribute.
 3. What is meant by statistical enquiry?
 4. Define sampling.
 5. Define frequency.
 6. What is tabulation of the data?
 7. Mention a type of one dimensional diagram.
 8. Name the graph used to locate median.
 9. Find mode for the following data: 3, 4, 5, 5, 6, 8, 5, 7, 5, 5, 8, 5, 5, 4, 5.
 10. If $SD = 4$ cms, find variance.
 11. What is causation?
 12. Write the co-ordinates of the point of intersection of the two regression equation.
 13. What is interpolation?
 14. Write the sample space when two coins are tossed once.
 15. What is the value of $E(8)$, if 8 is a constant.

Section – B

- II. Answer **any ten** of the following questions. **10 × 2 = 20**
16. Mention two functions of Statistics.
 17. What is meant by nominal and ordinal scales?
 18. Mention the sources of secondary data.
 19. Write two causes of sampling errors.
 20. Write down the types of classification.
 21. Find frequency density for the following data.

C.I	0 – 10	10 – 30	30- 50	50 – 60
f	10	25	40	15

22. Mention two needs of diagrams.
23. Write down the two limitations of diagrams and graphs?
24. If sum of 15 observations is 450. Find its mean.
25. For the following data compute coefficient of range.
Height (cms): 160, 158, 159, 165, 148, 139, 142, 155.
26. Draw a scatter diagram to show that there exists perfect negative correlation between two variables.
27. Prove that $\gamma = \pm\sqrt{b_{xy} \times b_{yx}}$
28. What is the difference between coefficient of correlation and association of attributes?
29. If A and B are two independent events and $P(A) = 0.6$, $P(B) = 0.5$, then find $P(A \cup B)$.
30. If $E(X) = 5$ and $E(X^2) = 36$, find $SD(X)$.

Section – C

III. Answer **any eight** of the following questions.

8 × 5 = 40

31. Mention five characteristics of Statistics.
32. Distinguish between census enumeration and sample survey.
33. Mention the methods of sampling and explain one of them.
34. Weights in kg of 50 students of a college are as follows.

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 table with suitable class intervals.

35. Following figures represent the decadal change of population of India. Draw a simple bar diagram.

Year	1971	1981	1991	2001	2011
Population(Million)	548	688	846	1028	1210

36. Prepare a histogram from the following data :

C.I	0-6	6-12	12-18	18-30	30-36	36-42
f	4	8	15	20	12	2

37. Calculate the harmonic mean from the following data.

X	10	20	30	40	50
f	2	4	6	5	3

38. Compute M.D from median for the data given below:

X	24	26	28	30	32	34
f	6	10	16	8	3	2

39. Calculate Pearson's coefficient of correlation from the following data.

X	40	42	46	48	50	56
Y	10	12	15	23	27	30

40. Following are the marks of 8 students in Statistics and Mathematics. Find coefficient of rank correlation.

Marks in Statistics	25	43	27	35	54	61	37	45
Marks in Mathematics	35	47	20	37	63	54	28	40

41. Compute Yule's coefficient of Association from the following data.
 $(AB) = 150, N = 1000, (A) = 200, (B) = 300.$

42. From the following data interpolate the production of cement in 2007.

Year	2005	2006	2007	2008	2009	2010
Production (in tons)	44	90	?	160	270	390

43. State and prove addition theorem of probability for two mutually exclusive events.

44. A box contains 6 white and 4 black marbles. Three marbles are drawn at random from this box. Find the probability that they are:
 (a) two white and one black marbles. (b) one white and two are black marbles.

45. State and prove multiplication theorem of expectation for two independent random variables X and Y.

Section – D

IV. Answer **any two** of the following questions.

2 × 10 = 20

46. Find mean and mode for the following distribution.

C.I	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
f	12	18	25	15	5

47. The number of runs scored by two batsmen A and B in different innings is as follows :

A	12	115	6	73	7	19	119	36	84	29
B	47	12	76	42	4	51	37	48	13	0

Who is better run scorer? Who is more consistent?

48. Calculate Bowley's coefficient of skewness from the data given below.

C.I.	0 – 15	15 – 30	30 – 45	45 – 60	60 – 75
f	25	38	16	10	5

49. Obtain the regression line of X on Y for the following bi-variate frequency distribution.

X	Y			
	5 – 15	15 – 25	25 – 35	35 – 45
75 – 125	4	1	-	-
125 – 175	7	6	2	1
175 – 225	1	3	4	2
225 – 275	1	1	3	4

50. From the following bi-variate data of X and Y find co-efficient of correlation between X and Y.

X\Y	0	10	20
1	0	0.1	0.1
2	0.1	0.2	0.1
3	0.2	0.1	0.1

Section – E

- V. Answer **any two** of the following questions.

2 × 5 = 10

51. Prepare a blank table to show the distribution of students according to
- College: Government, Aided, Unaided.
 - Faculty: Science, Commerce, Arts.
 - Gender: Boys, Girls.

52. The following data relates to the expenditure of a family per month. Draw a pie chart.

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

53. The mean and standard deviation of a distribution of 100 and 150 items are 50, 5 and 40, 6 respectively. Find the combined standard deviation of all the 250 items taken together.
54. A purse contains 4 silver and 2 gold coins. Another purse contains 3 silver and 4 gold coins. If a coin is selected at random from one of the two purses, what is the probability that it is a silver coin?
55. A box contains 8 items of which 2 are defective. A man selects 3 items. Find the expected number of defective items in the selection.
