I. *Answer ALL the questions*

1. Define Statistics
2. Define sample survey.
3. Define frequency density.
4. Define width of the class.
5. Name the average obtained by Histogram.
6. What is one dimensional diagram.
7. Name the distribution when $\beta_2 > 3$.
8. For continuous data write the formula of D_5.
9. What is the value of ''r'' when two variables are not correlated?
10. What is interpolation?
11. If P(A)=0.4 then find P(A')?
12. When two random variables are said to be independent?

SECTION B

II. *Answer ALL the questions*

13. Define ordinal scale with example.
14. Write any two demerits of census enumeration.
15. For the following data find relative frequency.

Observation	2	1	0
Frequency	1	2	1

16. What is qualitative classification? Give an example.
17. Write any two demerits of graphical presentation of data.
18. Write any two comparisions of diagrams and graphs.
19. Give the relationship among a) $\bar{x}$, M ,Z b) A.M ,G.M,H.M
20. If the least value and the highest value in a data are -8 and 60. Find coefficient of range .
21. Mention two merits of Spearmen's coefficient of rank correlation.
22. Write any two properties of regression coefficient .
23. If P(A)=2/3 and P(B|A)=3/5 then find P(A∩B).
24. If Var(x)=9 and E(x)=4 find $E(x^2)$

SECTION C

III. *Answer ALL the questions*

25. Mention the functions of Statistics.
26. Explain the method to draft a questionnaire
27. Prepare a blank table showing the particulars relating to the residents of a certain locality according to
    Occupation: office assistants, business men, teachers, bank employees.
    Gender: men and women   **Marital status**: married, single.

28. The following data relates to the monthly expenditure (in Rs) of two families A and B.

Commodities	Expenditure	
	Family A	Family B
Food	2000	2500
Clothing	1000	2000
Rent	800	1000
Light and Fuel	400	500
Miscellaneous	800	2000

Represent the data by a rectangular diagram on percentage basis.

29. The following table shows the age distribution of persons in a particular region. Find median age.

Age	Below 10	Below 20	Below 30	Below 40	Below 50	Below 60	Below 70
No. of persons	2	5	9	12	14	15	16

30. Write the difference between correlation and regression.

31. Find the two regression lines from the following data.

X	55	57	58	59	59	60	61	62	64
y	74	77	78	75	78	82	82	79	81

32. Following are the survey results of literate persons and the employment at a village .Find Yule's coefficient of association and interpret. Total adults =5000, Literates=645, Employed=695, Literate employed=410.

33. Use the binomial expansion method to estimate the index number for 2004.

Year	2000	2001	2002	2003	2004
Index No.	100	107	124	157	-

34. State and prove multiplication theorem of probability for two dependent events.

35. The probability that India wins a cricket match is 0.6. If India plays three matches find the probability that it wins a) at least one match.   b) all the three matches .

36. State and prove addition theorem of expectation for two random variables X and Y.

SECTION D

30. *Answer ALL the* questions

37. Compare the variations and averages for the following distribution regarding expenditure on food of families in two different places.

Expenditure per month	Number of families	
	Place A	Place B
600-800	25	32
800-1000	42	65
1000-1200	68	84
1200-1400	152	124
1400-1600	53	30

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

C-I	30-40	40-50	50-60	60-70	70-80	80-90	90-100
F	1	3	11	21	43	32	9

39. Calculate the coefficient of correlation between X and Y for the following data.

X\Y	0	1	2	3
0	3	4	2	-
1	4	8	8	-
2	-	7	12	8
3	-	-	3	8

40. (a) A box contains 5 white balls and 3 black balls. Two balls are drawn one after the other. Find the probability of getting a white ball in the first draw and a black ball in the second draw when (*) the first drawn ball is replaced.

(*) the first drawn ball is not replaced.

(b) A random variable X has the following probability distribution.

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

Find the value of k and calculate mean and variance of x.

SECTION E

31. *Answer ALL the questions*

41. Given below are the daily wages in rupees of 36 workers in a factory manufacturing plastic products.

100,115,120,125,92,140,150,162,189

165,200,220,250,240,300,320,270,280

400,382,288,235,225,312,270,250,242

344,248,188,220,240,212,224,325,425

From a frequency distribution taking lowest class interval as 90-140 with magnitude of 50.

42. The mean of the following data is 20.5. Find the missing frequency

X	10	15	20	25	30
f	5	7	-	12	6

43. Calculate the coefficient of rank correlation.

X	18	28	35	44	35	26	37	48
y	83	51	34	34	34	28	46	47

44. There are 100 tickets in a lottery. There is one first prize worth Rs25 and two second prizes worth Rs10 each. What is the expected prize amount that a particular lottery ticket fetches? If a lottery ticket is bought for Rs 1 what is the expected loss?