



Note: 1. Graph sheets and statistical tables will be supplied on request.

2. Scientific calculators are allowed.

3. All working steps should be clearly shown.

Section– A

I. Answer all the questions:

10× 1 = 10

1. Define Attribute.
2. Who is an investigator.
3. What is tabulation of the data?
4. Define frequency distribution.
5. Which graph is used to locate mode.
6. Find the geometric mean of 2 and 8.
7. For a data if $D_5=50$, then what is the value of P_{50} ?
8. Name the type of kurtosis if $\beta_2 > 3$.
9. Mention the type of correlation between 'speed of a vehicle and distance covered by it'.
10. What is interpolation?
11. If $P(A) = 2/5$, then find $P(A)^!$
12. What is the value of $Cov(x, y)$, If X and Y are independent.

Section– B

II. Answer all the questions:

10 × 2 = 20

13. Mention any two characteristics of statistics.
14. Mention two methods of sampling.
15. What do you mean by inclusive class intervals? Give an example.
16. Mention any two rules of tabulation.
17. Mention any two importance of diagrams and graphs.
18. What is Histogram?
19. Indicate scatter diagrams for $r = +1$ and $r = -1$
20. What are regression lines? Where do they intersect?
21. In a bivariate data on X and Y, covariance is 20, variances are 25 and 36 respectively. Find r_{xy} .
22. If $P(A \cup B) = 1/2$, $P(A) = 1/3$, $P(A \cap B) = 1/10$ find $P(B)$.
23. If $r = 0.8$, $\sigma_x = 3$, $b_{xy} = 0.5$ find σ_y .
24. Define a random variable. Give an example.

Section – C

III. Answer all the questions:

8 × 5 = 40

25. Write the functions of statistics.

26. What are the guidelines for the construction of a questionnaire?
27. In a sample study about the food habits of residents of a Agrahar Village, the following data were observed, 55% of the residents were males; 85% were vegetarians; only 12% were non-vegetarian females. Tabulate the above information.
28. Following is data regarding strength of a college. Draw percentage bar diagram.

Academic Year	Number of Students		
	Male	Female	Total
2009-10	350	150	500
2010-11	800	200	1000
2011-12	1200	800	2000
2012-13	1000	1000	2000

29. For the following observations, find AM, GM and HM.

12	42	25	35	67	25	56	5	75
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30. Explain the types of correlation with examples
31. Find Spearman's co-efficient of rank correlation from the data

Student	A	B	C	D	E
Marks in Accountancy	56	45	76	89	65
Marks in Statistics	65	54	67	98	56

32. 200 candidates appeared for II PUC examination in a college and 60 of them succeeded. 35 received a special coaching in tutorial class and out of them 20 candidates succeeded. Using Yule's coefficient discuss whether the special coaching is effective or not.
33. Interpolate the index for 2008 from the following data.

Year	2006	2007	2008	2009	2010
Index No.	278	281	-	313	322

34. State and prove multiplication theorem of probability for two dependent events.
35. The contents of two boxes are as follows:
 I box: 3 Red, 4 white marbles
 II box: 5 Red, 6 white marbles
 One of the boxes is selected at random and then a marble is drawn from it, what is the probability that it is Red in colour?
36. If X is a random variable and 'a' is any constant, then prove that $E(aX)=aE(X)$ and $Var(aX)=a^2Var(X)$

Section – D

IV. Answer all the questions:

2x 10 = 20

37. Calculate Mean, Mode and Median for the following data.

Weekly Wages	<500	<700	<900	<1100	<1300
No. of Workers	25	80	110	130	150

38. Find Karl Pearson's Coefficient of skewness for the following data.

C.I	10-14	15-19	20-24	25-29	30-34
6	5	9	15	13	8

39. Find the two Regression lines form the following data.

Exports (Tons)	42	44	58	55	89	98	66
Imports (Tons)	56	49	53	58	65	76	58

Estimate the number of export when the number of imports is 50.

40. (a) The probability that a boy will pass an examination is $\frac{3}{5}$ and that of a girl is $\frac{2}{5}$. Find the probability that i) both of them passes the examination. ii) atleast one of them passes the examination.

(b) Find the mathematical expectation of the number of heads obtained when two fair coins are tossed once.

Section – E

V. Answer all the questions:

2× 5 = 10

41. Following are the weights (in kg) of forty students of a college. Prepare frequency distribution table with width 5.

Weights (in kg):- 45, 56, 50, 41, 55, 51, 46, 50, 45, 57, 64, 48, 53, 43, 57, 44, 54, 59, 49, 52, 42, 61, 51, 63, 48, 56, 45, 50, 55, 63, 45, 55, 60, 50, 46, 50, 42, 52, 62, 50

42. Draw histogram Hence find the value of mode

C-I	10-20	20-30	30-40	40-50	50-60
6	3	7	10	8	2

43. For the following data find the value of lower and upper quartiles.

Daily Wages (in Rs)	Below 100	Below 200	Below 300	Below 400	Below 500
No of Workers	10	30	80	105	120

44. From the following table find K and V ($3x+2$)

X	-1	0	1	2
P(x)	$\frac{1}{4}$	$\frac{1}{6}$	K	$\frac{5}{24}$
