NOTE: 1. All Questions are compulsory.   Marks:75

2. All questions carry equal marks.   Time:2 ½ hrs

Q.1 Choose correct Answer(Attempt any eight)   [8]

1. Mode of 34,23,45,34,28,34,45,27,28,51 is

a)45   b)34   c)28   d)51

2. If Mean marks of students are 26.5 and ∑fx=2120 what will be total number of students

a)40   b)80   c)75   d)90

3.By adding successive frequencies in a distribution we get_____
a) cumulative frequency   b)relative frequency   c)virtual frequency
d)None of these

4. Median is which Decile?
a)First   b)Third   c)Fifth   d)Seventh

5.Derivative of $y=2x^2$ is equal to_____
a)2x   b)4x   c)$3x^2$ d)3x

6. An _____ annuity is a series of equal payments made at the end of consecutive periods over a fixed length of time.
a)Ordinary   b)deferred   c)perpetuity   d)Certain

7. Decile refers to division of series into _____parts
a)10   b)4   c)6   d)9

8. If increases in X leads to decrease in Y then correlation is said to be ___
a)positive   b)negative   c)absence   d)depends

9. If standard deviation of x is 4,standard deviation of y is 2 and coefficient of correlation r=0.7 .what is b_{yx} ?
a) 0.35   b)2   c).5   d)1.4

10. If Karl Pearson's coefficient of correlation r = -1 then we can say that the correlation between two variable is
a) Perfect negative   b) Perfect positive   c) no relation
d)Positive

B. State whether following statement is true or false(Any seven)   [7]

1. A perpetuity is a security that pays for an infinite amount of time.
2. The value of most repeated in data set is called arithmetic mean.
3.Range = Minimum – Maximum
4.Standard deviation is relative measure of dispersion.
5.Correlation shows whether variable is related or not.
6.Scatter diagram cannot give degree of relationship.
7.Value of correlation lies between -1 and 1.
8.Diagram and graph are pictorial representation of data which is easily understand by common man.

1

9.Simple interest on sum of Rs. 10000 at a rate of interest 12% p.a. for 4 years is less than compound interest.

10.Quartiles divide the data into four parts.

Q.2. Draw Histogram and frequency polygon for the same data on same graph [8]

Class-interval	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	23	26	35	25	11	8

B. Draw simple bar diagram for the following. [7]

Year	1990	1991	1992	1993	1994	1995
Income of company	10000	22000	20000	15000	30000	35000

OR

C. The following data gives the number of defective article by workers in a factory in a month.Find arithmetic mean and mode for following data. [8]

No of defective articles	20-30	30-40	40-50	50-60	60-70
No. of workers	5	8	10	12	5

D.Following data gives frequency distribution of age of 200 teachers.Find Q1,Q3,D4 and P77. [7]

Age in yrs	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60
No.Of teachers	21	19	50	40	16	20	19	15

Q.3ACalculate Karl Pearson's correlation coefficient for the following. [8]

i) PRICE (Rs): 8 10   15   17   20   22   24   25

SUPPLY (Rs): 25   30   32   35   37   40   42   45

B. Calculate mean deviation from mode for following data. Also find its coefficient. Data is showing time taken by cashier to serve customer in store. [7]

Time in second	40-50	50-60	60-70	70-80	80-90	90-100
No.of customer	6	26	30	24	9	5

OR

2

C. Calculate Spearman`s rank correlation coefficient for the following. [4]

X : 25 28   32   36   40   32   39   42   40   45

Y : 70 80   85   70   75   65   59   65   54   70

D.Calculate the standard deviation for the following data giving bursting pressure of polyethene bag. [7]

Bursting pressure In kg	5-10	10-15	15-20	20-25	25-30
No.Of bags	2	8	25	54	11

Q.4AFind the regression line of y on x from the following data. [8]

Advt Exp.(1000 Rs)	12	15	20	23	24	25
Sales(1000Rs)	5	6	8	9	10	13

B. A survey conducted to study the relationship between expenditure on cloths & expenditure on entertainment in a locality gave the following results: - [7]

	Average	Standard deviation
Expenditure on cloths	300.00	20.00
Expenditure on entertainment	100.00	15.00

Coefficient of Correlation r = 0.78

OR

C.(i) Simple interest on Rs.5,000 for 3.5 years at 6% p.a. is Rs.300 more than the simple interest on Rs.3,000 for 2.5 years at certain rate of interest. Find rate of interest. [8]

(ii) At what compound interest rate will be Rs.30,00,000 earn Rs.10,81,466.88 n=4.

D. Find derivative of following [7]
(!) $y=3x\log x + 2x^3+e^x$
(ii) $y=5^x+x^5+5^5+5\log x$
(iii) $y=(3x^2+2x)(2x+3)$

Q5AExplain types of functions with example. [8]
   B. Explain scatter diagram [7]

OR

Q.5 write short not on following(any three)

1. Types of annuity
2. Frequency polygon
3. Types of correlation
4. Histogram
5. Relationship between coefficient of correlation and regression