Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
Q. 1. Choose the most appropriate option.

1. $\quad$ Median $=$ $\qquad$ Quartile
a) second
b) First
c) Fifth
d) Third
2. A distribution with two modes is called ..Bi-modal
a) Bi -modal
b) No mode
c) Modal
d) Multimodal
3. $10,12,23,17,13,9,17$ then median=
a) 13
b) 9
c) 12
d) 17
4. $105,110,98,103,105,101,112$ are data on no. of students in different colleges in first Year then mean= $\qquad$
a) 106
b) 109
c) 112
d) 98
5. $\quad$ P $=0.3$ is probability then $\mathrm{q}=$
a) 0.7
b) 0.8
c) 0.6
d) 1
Q. 2. State True / False
6. C.V.(Professors)=12.50, C.V. (Physicians)=17.39 then professors are more efficient.
a) True
b) False
7. $\mathrm{F} 0=12, \mathrm{fm}=18, \mathrm{f} 1=14$, modal class $=45-49$, then Mode $=47.5$
a) True
b) False
8. Median can be located graphically
from the Histogram.
a) True
b) False
9. Ogive curve is also called as cumulative frequency curve.
a) True
b) False
10. $\mathrm{C} . \mathrm{V}=60 \%$,s.d. $=12$ then Mean $=23$
a) True
b) False

## Q. 3. Write Short notes on (Any Three)

1. Median
2. Correlation coefficient
3. Partition values
4. Use of Statistics in Business
5. Index Number

## Q. 4. Answer in detail (Any Two)

1. In an agricultural experiment on the study of depth of water in the soil ( x ) in feet on yield of the crop in quintal per plot (y) the following data were obtained.

| X | 1.8 | 1.9 | 2.5 | 1.4 | 1.3 | 2.1 | 2.3 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Y | 200 | 370 | 450 | 160 | 90 | 440 | 380 |

Obtain the equation of line of regression of $Y$ on $X$ and estimate the yield when the depth of Water in the soil is 2 ft .
2. Compute Laspeyre's Passche's and Fisher's Index number for price from the following data given -

| Commodity | $\mathrm{P}_{0}$ | $\mathrm{q}_{0}$ | $\mathrm{P}_{1}$ | $\mathrm{q}_{1}$ |
| :--- | :--- | :--- | :--- | :--- |
| A | 100 | 10 | 120 | 12 |
| B | 120 | 08 | 150 | 10 |
| C | 250 | 09 | 380 | 15 |
| D | 500 | 04 | 700 | 10 |
| E | 650 | 06 | 750 | 12 |

3. Find Karl Pearson`s Correlation Coefficient for the following Data:

| X | 14 | 16 | 18 | 12 | 13 | 23 | 27 | 11 | 19 | 16 |
| :---: | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Y | 28 | 22 | 21 | 29 | 20 | 30 | 24 | 25 | 21 | 20 |

## Q. 5. Case study (Any One)

1. 

The number of items of an industrial product sold by two salesman A and B in ten months in an year are given below. From these data -

| A | 128 | 132 | 143 | 140 | 152 | 145 | 135 | 129 | 130 | 145 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| B | 142 | 150 | 160 | 130 | 120 | 125 | 135 | 145 | 140 | 142 |

i) Calculate Mean of A \& B.
ii) Estimate C.V. of both series A\& B.
iii) Compare both C.V
iv) Write your result.
2. Given data -
X = advertising expenses (‘000)
Y = Sales ( lakhs )

| X | 39 | 65 | 62 | 90 | 82 | 75 | 25 | 98 | 36 | 78 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Y | 47 | 53 | 58 | 86 | 62 | 68 | 60 | 91 | 51 | 84 |

Estimate the Karl Pearson's correlation coefficient and write your decision.
i) Calculate mean.
ii) Estimate covariance.
iii) Estimate Correlation coefficient
iv) Write your decision.

