CB

TILAK MAHARASHTRA VIDYAPEETH, PUNE
BACHELOR OF COMPUTER APPLICATIONS (B.C.A.)
SPECIALIZATION IN CYBER SECURITY (CS)
EXAMINATION : JUNE- 22
SEMESTER - II
Sub: Statistics (BCA – 240-18/240-20/BCA-CS-240-20)

Date : 20/06/2022 **Total Marks : 60** **Time: 2.00 pm to 4.30 pm**

Instructions:

1. *All questions are compulsory unless and otherwise stated.*
2. *Bold figures to the right of every question are the maximum marks for that question.*
3. *Candidates are advised to attempt questions in order.*
4. *Answers written illegibly are likely to be marked zero.*
5. *Use of scientific calculators, Log tables, Mollier Charts is allowed.*
6. *Draw neat and labelled diagrams wherever necessary.*

Q.1. Solve (Any 4) **(8)**

1. While calculating the … graphically, drawing of histogram is necessary.
   (a) mode (b) mean (c) median (d) all the above

2. The empirical relationship between Mean, Mode and Median is…
   (a) (mean – mode) = 4 (mean – median)
   (b) (mean – mode) = 3 (mean – median)
   (c) (mean – median) = 4 (mean – mode)
   (d) (mean – median) = 3 (mean – mode)

3. The heights of all the columns are equal in case of ….
   (a) histogram.
   (b) subdivided bar diagram.
   (c) joint bar diagram.
   (d) percentage bar diagram.

4. The frequency distribution table in which the classes of the types 10-20,20-30,30-40… etc. denotes… type of frequency distribution.
   (a) inclusive (b) exclusive (c) oggive (d) all the above

5. In case of a bivariate data, the product of the regression coefficients is always equal to….
   (a) the square root of the correlation coefficient.
   (b) the square of the correlation coefficient.
   (c) the correlation coefficient.
   (d) The covariance between X&Y.

Q.2. Solve (Any 3) **(9)**

1. Find the mean for the following data:

Classes	0-2	2-4	4-6	6-8	8-10
Frequencies	120	130	250	450	50

2. Write down True or False:

   (i) When the given data is symmetric, the values of Mean, Mode and Median are equal.

   (ii) The column of Cumulative frequency less than type is necessary for calculation of Mode.

   (iii) The algebraic signs of both the regression coefficients are always different.

3. For representing the given data by Pie diagram, only calculate the degree measures of each of the following items : **(The drawing of Pie Diagram is not expected)**

Items	Food	Clothing	Education	Ent`ment	Savings	Others	Total
Expenses (Rs.)	3600	1200	1500	600	4800	300	12000

4. The cost of living Index Number for the year 2000 and 2003 are 150 and 210 respectively. A person earns Rs.13,500 per month in the year 2000. What should be his monthly income in the year 2003 in order to maintain the same standard of living?

Q.3. Solve (Any 2) **(8)**

1. Represent the following data with Simple Bar diagram :

Days	Monday	Tuesday	Wednesday	Thursday	Friday
Rainfall (in cms)	2	1	1	3	4

2. Find Fishers Index number for the following data:

Commodities	Base Year prices	Base Year quantities	Current Year prices	Current Year quantities
A	20	10	25	8
B	35	8	55	6
C	40	12	50	10
D	30	15	42	10

3. Find 'x' if the Cost of Living Index Number for the following data is 193:

Group	a	b	c	d	e
I	221	198	171	183	161
W	35	14	x	8	20

Q.4. Solve (Any 3) **(15)**

1. Find Q_1,Q_2 & Q.D. for the following observations: 12, 12,18,14,16, 8 .

2. Find the Mode of the data given below:

Classes	10-11	12-13	14-15	16-17	18-19
Frequencies	3	8	5	3	1

3. The mean weight of 150 students is 60kg. The mean weight of boys are 70kg with a S.D. of 10kg. , for girls, the mean weight is 55kg. with a S.D. of 15kg. Find the number of boys and combined S.D.

4. Find the arithmetic mean of the X and arithmetic mean of Y for the regression lines $6x + y - 31 = 0$ and $3x + 2y - 26 = 0$.

Q.5. Solve. (Solve any 2) **(20)**

1. Find Karl Pearson`s correlation coefficient for the following bivariate data:

X	64	62	66	63	67	61	69	65	67	66
Y	67	65	67	64	68	65	67	64	70	66

2. Two samples from bivariate populations have equal 15 observations each. The sample means of X and Y are 25 and 18 respectively. The corresponding sum of the squares of deviations from their respective means are 136 and 150 respectively. The sum of product of deviations from respective means is 123. Find the equation of line of regression of the type X on Y.

3. Using the coefficient of variation, find which of the two batsmen is more consistent in scoring the runs.

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