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SPECIALIZATION IN CYBER SECURITY (CS)
EXAMINATION : DECEMBER - 2022
SEMESTER - II
Sub: Statistics (BCA – 240-18/240-20/BCA-CS-240-20)

Date : 27/12/2022	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. If $2x + 3y = 5$ and $x + 2y = 3$ are the two regression equations.
   Find the values of $\bar{x}$ & $\bar{y}$

2. The daily expenditures of 10 families is given below.
   700,750,700,800,750,775,800,750,720,750.
   Find: Mean and Median

3. Find cumulative frequencies (less than type and more than type) for the following data:

Class	20-25	25-30	30-35	35-40	40-45	45-50	50-55
Frequency	4	9	13	18	6	3	2

4. If the Mean of the observations given below is 233, find the missing frequency.
   245,212,200,256,198,186, x, 282,165,182.

5. For what value of x, for the given data, the values of Mean, Mode and Median are equal?

Class	0-10	10-20	20-30	30-40	40-50
Frequency	4	9	12	x	4

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

1. Find the mode for the following data:

Class	0-10	10-20	20-30	30-40	40-50
Frequency	2	11	8	5	4

2. Write down True or False:

   (i) The midpoint of the class is also called as classmark.

   (ii) The difference between upper boundary and lower boundary of the class ,
       is called as classwidth.

   (iii) If the upper boundary of the first class and lower boundary of the second class are same
       then the frequency distribution is said to be inclusive.

3. Find the standard deviation of the following frequency distribution.

X	1	2	3	4	5
f	k	2k	3k	4k	5k

4. Write down the Merits and Demerits of Median.

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

1. Draw the pie diagram for the following data on percentages of expenditure on different items in an average family budget.

Items	Food	Clothing	Fuel	Rent	Others
% expenditure	35	25	20	15	5

2. If the mean of the data given below is 23.6, find the missing frequency.

Class	0-10	10-20	20-30	30-40	40-50
Frequency	7	12	…	13	3

3. For the following frequency distribution, answer the following questions:

Length in cms	No. of servers
4.0-4.1	13
4.1-4.2	23
4.2-4.3	42
4.3-4.4	67
4.4-4.5	30
4.5-4.6	13
4.6-4.7	12

   (i) Determine the type of frequency distribution? Inclusive or Exclusive?
   (ii) Determine class boundries of the data.
   (iii)What is the width of 4th class?
   (iv)Find less than cumulative frequencies

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

1. For the bivariate data: $\bar{x} = 53,\ \bar{y} = 28,\ b_{xy} = -0.3$ and $b_{yx} = -1.2$.
   Find: (i) Estimate of X when Y = 25 (ii) Estimate of Y when X = 50.

2. Calculate Fisher`s index number for the following data:

Commodity	Base Year Price	Base Year Quantity	Current Year Price	Current Year Quantity
A	4	15	6	20
B	3	40	5	35
C	5	20	5	25
D	6	10	8	10

3. Find Mode graphically for the following data:

Class	0-10	10-20	20-30	30-40	40-50
Frequency	3	5	7	10	8

4. Calculate Mean Deviation about Mean for the following data:
   15,17,15,10,20,14,22,18,26,13

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

1.   Find Regression coefficients and Karl Pearson`s correlation coefficient for the following data:

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

2.   In a hockey match in between A & B , the goals scored by both the teams are as follows:

A	5	4	6	2	3	8	2	6	8	6
B	10	8	9	7	9	15	5	12	13	2

Which of the teams is more consistent for scoring the goals?

3.   The equations of the two regression lines are $3X + 2Y - 26 = 0$ & $6X + Y - 31 = 0$.
Find the means of X & Y. Estimate Y for X = 2.

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