F.Y.BFM - Sem II - A.T.K.T. Exam - Sept' 22

FYBFM SEM-II

SUBJECT: BUSINESS STATISTICS

26.9.22

75 Marks

NOTE:

1. All questions are compulsory.
2. Use of simple calculator is allowed.
3. Figure to the right indicate full marks to the corresponding question.

Q-1 (a) **08 Marks**

Choose the correct alternatives from the following: (Attempt any 8)

1. The arithmetic Mean of 1357, 1454,1389,1405, 1485 is equal to
   a. 1450 b. 1350 c.1300 d. 1418
2. The Karl Pearson's correlation is calculated from _____
   a. Value b. Rank c. Either d. None
3. The average of lower and upper class limits is called:
   a. Class boundary b. Class frequency c. Class mark d. Class limit
4. ..... is based on all values of data.
   a. Mean b. Median c. Mode d. Quartiles
5. If both regression coefficients are positive then the correlation coefficient between the variable is:
   a. Positive b. Negative c. Zero d. Depend
6. If the two regression coefficients are 0.5 and 1.6 then the correlation coefficient of the variable is:
   a. 0.8 b. - 0.8 c. 1.6 + 0.8 d. 1.6 - 0.8
7. If $Q_1 = 18.5$ & $Q_3 = 33.5$ then Quartile Deviation =
   a. 3.5 b. 4.5 c. 5.5 d. 7.5
8. Which of the following is not the measure of central tendency
   a. Mean b. Median c. Mode d. Quartile
9. The point satisfying the inequality $3x-5y > 0$ is:
   a. (3, 5) b. (5, 3) c. (5, 5) d. (7,2)
10. Let $x + 2y = 5$ be the regression equation y on x. The value of b_{yx} is equal to
    a. -0.7 b. -0.7 c. 0.5 d. -0.5

(b) **07 Marks**

State whether the following statements are True or False :(Attempt any 7)

1. Standard deviation is the square of Variance.
2. Coefficient of correlation cannot be negative.
3. Statistics cannot be used for an individual.
4. The correlation graphs are called histograms.
5. 10 students secured marks in a certain exam is given as- 39,42,30,41,38,58,41,35,37,41. Mode marks is 40.
6. If the coefficient of variation for Groups 1, 2 & 3 are 18.27, 18.76 & 16.85 respectively then Group 2 is more consistent.
7. The number of tally sheet counts for each value or a group is called Frequency.
8. Histogram can be used to calculate the mode.
9. For the linear equation $x + 4y = 24$, the point at which it intersects the y-axis on a graph is (0,6).
10. Percentiles represent 99 values divided by the entire distribution of data into 100 equal parts.

Q:2 Solve the following :

(a) **08 Marks**

Calculate 78^{th} Percentile and 7^{th} Deciles for the following distribution.

Daily profit (in Rs.)	100-140	140-180	180-200	200-220	220-240	240-260
No. of Shops	14	45	52	82	32	23

(b) Solve the following LPP Graphically: **07 Marks**

Maximize

$Z = 2x + 5y$

Subject to,

$x + 4y \leq 24$

$3x + y \leq 21$

$x + y \leq 9$

$x \geq 0, y \geq 0$

OR

(a) **08 Marks**

Compute Mean and Mode.

Summer Earning: (in Rs.)	0-500	500-1000	1000-1500	1500-2000	2000-2500	2500-3000	3000-3500
No of students	231	304	400	296	123	68	23

(b) Solve the following LPP Graphically: **07 Marks**

Minimize

$$Z = 4x + 2y$$

Subject to,

$$x + 2y \geq 4$$
$$3x + y \geq 6$$
$$4x + 3y \geq 12$$
$$x \geq 0, y \geq 0$$

Q:3 Solve the following :

(a) **10 Marks**

Calculate the quartile deviation for the following distribution giving exports of 100 companies. Also, find its relative measure.

Exports (in lakhs of Rs.) :	0-30	30-60	60-90	90-120	120-150	150-180
No. of Companies :	8	15	25	32	16	4

(b) **05 Marks**

Prepare frequency distribution for the following data giving height of 30 children.

125,126,130,144,143,150,138,139 123,120,119,116,110,126,150

128,129,137,133,132,125,119,114,134,137,149,120,110,130,140,

OR

(a) **10 Marks**

Public transportation and the automobile are two methods an employee can use to get to work each day. A sample of times recorded for each method is shown (Time is in minutes).

Public transportation:	28	29	32	37	33	25	29	32	41	34
Automobile :	29	31	33	32	34	30	31	32	35	33

Compute the mean time and standard deviation for each method.

(b) **05 Marks**

The average wage for 50 male workers is Rs.63/- & the average wage for 40 female workers is Rs.54/- in a factory. Find the combined average for all the workers in the factory.

Q:4 Solve the following :

(a) **08 Marks**

From the following data find both the regression coefficients and hence find the coefficient of correlation.

MARKS IN TEST I	: 80	45	50	60	60	48	59	70
MARKS IN TEST II	: 85	60	60	61	58	55	55	75

(b) **07 Marks**

By using the following data, find Karl Pearson's coefficient of correlation.

$\sum x = 260; \sum y = 450; \sum xy = 7050; \sum x^2 = 4720; \sum y^2 = 12230; n=20.$

OR

(a) **08 Marks**

Calculate Spearman's rank correlation coefficient for the following.

X	: 25	28	32	36	40	32	39	42	40	45
Y	: 70	80	85	70	75	55	59	65	54	70

(b) **07 Marks**

By using the following data, find out the two lines of regression and from them compute Karl Pearson's Coefficient of correlation.

$\sum x = 260; \quad \sum y = 450; \quad \sum xy = 7050; \quad \sum x^2 = 4720; \quad \sum y^2 = 12230; \quad n=20.$

Q:5

(a) Distinguish between Primary Data and Secondary Data **08 Marks**

(b) Write functions of statistics. **07 Marks**

OR

Write Short notes on the following: (Attempt any 3) **15 Marks**

1. Measures of central tendency
2. Measures of Dispersion
3. Sampling Techniques
4. Concept of Correlation
5. Concept of Regression

.....X.....X.....