

SEM 2 STATS Q BANK UNIT 3 AND 4 (CORRELATION,REGRESSION,INDEX NUMBERS, TIME SERIES)

1.

What is the 3-yearly centred moving average for the year 2017 in the following time series?

Year: 2015 2016 2017 2018 2019

Sales: 10 17 21 16 20

- a) 16 b) 17 c) 18 d) 19

Mark only one oval.

- a)
- b)
- c)
- d)

2.

If $\sigma_x = 4$, $\sigma_y = 25$, cov(x, y)=70 then the coefficient of correlation equals to

- a) 0.4 b) 0.5 c) 0.6 d) 0.7

Mark only one oval.

- a)
- b)
- c)
- d)

3.

If a bivariate data is plotted on a graph paper then the resultant diagram is called

- a) Pie diagram
- b) Time Series Graph
- c) Scatter Diagram
- d) Regression line

Mark only one oval.

- a)
- b)
- c)
- d)

4.

If R is Spearman's Rank Correlation of a bivariate ranked data then which of the following is always true?

- a) $-0.5 \leq R \leq 0.5$
- b) $-1 \leq R \leq 0$
- c) $-1 \leq R \leq 1$
- d) $0 \leq R \leq 1$

Mark only one oval.

- a)
- b)
- c)
- d)

5.

If b_{xy} is the regression coefficient of y on x regression line then b_{xy} is equals to

- a) $r \frac{\sigma_y}{\sigma_x}$ b) $r \frac{\sigma_x}{\sigma_y}$ c) $\frac{\sigma_x}{\sigma_y}$ d) $\frac{\sigma_y}{\sigma_x}$

Mark only one oval.

- a)
- b)
- c)
- d)

6.

The regression equation of x on y is

- a) $y - \bar{y} = b_{yx}(x - \bar{x})$ b) $x - \bar{x} = b_{xy}(y - \bar{y})$ c) $y - \bar{y} = b_{xy}(x - \bar{x})$ d) $x - \bar{x} = b_{yx}(y - \bar{y})$

Mark only one oval.

- a)
- b)
- c)
- d)

7. Use the following data to find Paasche's index number .

$$\sum p_1 q_1 = 1610, \sum p_0 q_1 = 1090$$

Mark only one oval.

- A) 100
- B) 147.7
- C) 161
- D) 109

8.

For a given bivariate data, if regression line of y on x is $3x+y=14$ then the most likely value of y when $x=2$ is

- a) 11 b) 8 c) 5 d) 2

Mark only one oval.

- a)
 b)
 c)
 d)

9.

The rankings of 3 participants by two judges in a music competition are as below.

$R_1: 1 \quad 2 \quad 3$

$R_2: 1 \quad 2 \quad 3$ The coefficient of rank correlation equals to

- a) -0.5 b) 0.5 c) -1 d) 1

Mark only one oval.

- a)
 b)
 c)
 d)

10.

If b_{yx} is the regression coefficient of y on x regression line then b_{yx} is equal to

- a) $\frac{Cov(x,y)}{\sigma_x \sigma_y}$
- b) $\frac{Cov(x,y)}{(\sigma_x)^2}$
- c) $\frac{Cov(x,y)}{(\sigma_y)^2}$
- d) $\frac{Cov(x,y)}{(\sigma_x \sigma_y)^2}$

Mark only one oval.

- a)
- b)
- c)
- d)

11.

If $b_{yx} = -0.3$, $b_{xy} = 0.3$ then in the context of the coefficient of correlation

- a) data is inconsistent
- b) $r=0$
- c) $r=0.3$
- d) $r=-0.3$

Mark only one oval.

- a)
- b)
- c)
- d)

12. What is the Simple Index number if price in 2015 is 400 and that in 2020 is 800 ?

Mark only one oval.

- A) 400
- B) 800
- C) 100
- D) 200

13.

The component which affects time series due to change in climate or festivals is called as

- a) Secular trend b) Cyclical Variation
- b) Seasonal Component d) Irregular Component

Mark only one oval.

- a)
- b)
- c)
- d)

14.

For a given data the Laspyre's Price Index Number is $L= 125$, and the Paasche's Price Index Number is $P= \underline{149}$. What is Dorbisch and Bowley's price index number for the data?

- a) 140 b) 139 c) 137 d) 135

Mark only one oval.

- a)
- b)
- c)
- d)

15.

What is the simple aggregate of price index number for the following data ?

$$p_0: \underline{2} \ \underline{4} \ 4$$

$$p_1: \underline{5} \ \underline{5} \ 6$$

- a) 140 b) 150 c) 160 d) 170

Mark only one oval.

 a) b) c) d)

16.

If for set of 10 pairs of non repeated ranked data $\sum d^2 = 60$ then the coefficient of rank correlation equals

a) $\frac{2}{3}$ b) $\frac{3}{5}$ c) $\frac{11}{15}$ d) $\frac{33}{75}$

Mark only one oval.

 a) b) c) d)

17.

If L denotes Laspyres' Price Index Number and P denotes Paasche's Price Index Number for any particular relevant data then the Fisher's Price Index Number is

- a) $\sqrt{L \times P}$ b) $\frac{L+P}{2}$ c) $\frac{L+P}{L-P}$ d) $\sqrt{L + P}$

Mark only one oval.

- a)
- b)
- c)
- d)

18.

If $\sum p_0 q_0 = 400$, $\sum p_0 q_1 = 500$ then the Laspyre's Index Number for the data is

- a) 125 b) 200 c) 250 d) 280

Mark only one oval.

- a)
- b)
- c)
- d)

19.

If the income for the base year 2019 is Rs 10000 then the real income for the year 2019 is

- a) 10000 b) 5000 c) 40000 d) 20000

Mark only one oval.

- a)
- b)
- c)
- d)

20. For a given time series a line of best fit is $y = 50 + 0.86 x$, where $x = \text{year} - 2013$. Estimate the value for year 2017.

Mark only one oval.

- A) 50
- B) 53.44
- C) 60
- D) 5

21. 2.3

If r is Karl Pearson's Coefficient of Correlation of a bivariate data then which of the following is always true?

- a) $-0.5 \leq r \leq 0.5$
- b) $-1 \leq r \leq 0$
- c) $0 \leq r \leq 1$
- d) $-1 \leq r \leq 1$

Mark only one oval.

- a)
- b)
- c)
- d)

22. Use the following data to find Laspeyres index number .

$$\sum p_1 q_0 = 1530, \sum p_0 q_0 = 1040$$

Mark only one oval.

- A) 147.12
- B) 153
- C) 104
- D) 67.97

23.

If $b_{yx} = -0.2$, $b_{xy} = 0.2$ then in the context of the coefficient of correlation

- a) data is inconsistent b) $r=0$ c) $r=0.2$ d) $r=-0.2$

Mark only one oval.

- a)
- b)
- c)
- d)

24. For a given data Laspey's index number is 144 and Paasche's Index number is 169 . What is Fisher's index number ?

Mark only one oval.

- A) 121
- B) 130
- C) 156
- D) 180

25.

The component which affects any time series due to unforeseen events is

- a) Secular trend b) Cyclical Variation
- b) Seasonal Component d) Irregular Component

Mark only one oval.

- a)
- b)
- c)
- d)

26.

What is the wieghted avarage of price relatives index number for the following data ?

| | | |
|----------------|----------|--------------|
| Commodity: | A | B |
| <u>Wieghts</u> | <u>:</u> | 8 2 |
| Index | <u>:</u> | 100 110 |

- a) 102 b) 105 c) 108 d) 111

Mark only one oval.

- a)
- b)
- c)
- d)

27.

What is the simple aggregate of price index number for the following data ?

$$p_0: \underline{4} \ \underline{5} \ 1$$

$$p_1: \underline{7} \ \underline{7} \ 3$$

- a) 140 b) 150 c) 160 d) 170

Mark only one oval.

- a)
- b)
- c)
- d)

28.

What is the 3-yearly centred moving average for the year 2016 in the following time series?

Year: 2015 2016 2017 2018 2019

Sales: 10 17 21 16 20

- a) 16 b) 17 c) 18 d) 19

Mark only one oval.

 a) b) c) d)

29.

If L denotes Laspyres' Price Index Number and P denotes Paasche's Price Index Number for any particular relevant data then the Fisher's Price Index Number is

- a) $\sqrt{L \times P}$ b) $\frac{L+P}{2}$ c) $\frac{L+P}{L-P}$ d) $\sqrt{L + P}$

Mark only one oval.

 a) b) c) d)

30.

If $\sum p_0 q_0 = 200$, $\sum p_0 q_1 = 500$ then the Laspyre's Index Number for the data is

- a) 125 b) 200 c) 250 d) 280

Mark only one oval.

- a)
 b)
 c)
 d)

31.

If the income for the base year 2019 is Rs 20000 then the real income for the year 2019 is

- a) 10000 b) 5000 c) 40000 d) 20000

Mark only one oval.

- a)
 b)
 c)
 d)

32. For a given time series a line of best fit is $y = 17.43 + 1.32x$, where $x = \text{year} - 2012$. Estimate the value for year 2017.

Mark only one oval.

- A) 20.15
 B) 24.03
 C) 22
 D) 5

33.

If r is Karl Pearson's Coefficient of Correlation of a bivariate data then

- a) $r = \frac{Cov(x,y)}{\sigma_x \sigma_y}$ b) $r = \frac{Cov(x,y)}{(\sigma_x)^2}$ c) $r = \frac{Cov(x,y)}{(\sigma_y)^2}$ d) $r = \frac{Cov(x,y)}{(\sigma_x \sigma_y)^2}$

Mark only one oval.

- a)
- b)
- c)
- d)

34.

If b_{yx} is the regression coefficient of y on x regression line then b_{yx} is equal to

- a) $r \frac{\sigma_y}{\sigma_x}$ b) $r \frac{\sigma_x}{\sigma_y}$ c) $\frac{\sigma_x}{\sigma_y}$ d) $\frac{\sigma_y}{\sigma_x}$

Mark only one oval.

- a)
- b)
- c)
- d)

35.

The point of intersection of the regression lines is

- a) (\bar{x}, σ_y) b) (σ_x, \bar{y}) c) (σ_x, σ_y) d) (\bar{x}, \bar{y})

Mark only one oval.

- a)
 b)
 c)
 d)

36.

The regression equation of y on x is

- a) $y - \bar{y} = b_{yx}(x - \bar{x})$ b) $x - \bar{x} = b_{xy}(y - \bar{y})$ c) $y - \bar{y} = b_{xy}(x - \bar{x})$ d) $x - \bar{x} = b_{yx}(y - \bar{y})$

Mark only one oval.

- a)
 b)
 c)
 d)

37.

For a given bivariate data, if regression line of y on x is $3x+y=14$ then the most likely value of y when $x=1$ is

- a) 11 b) 8 c) 5 d) 2

Mark only one oval.

- a)
 b)
 c)
 d)

38.

If $\sigma_x = 10$, $\sigma_y = 5$, $\text{cov}(x, y)=20$ then the coefficient of correlation equals to

- a) 0.4 b) 0.5 c) 0.6 d) 0.7

Mark only one oval.

- a)
 b)
 c)
 d)

39.

If for set of 10 pairs of non repeated ranked data $\sum d^2 = 50$ then the coefficient of rank correlation equals

- a) $\frac{2}{3}$ b) $\frac{3}{5}$ c) $\frac{11}{15}$ d) $\frac{33}{75}$

Mark only one oval.

- a)
 b)
 c)
 d)

40. 2.3

The rankings of 3 participants by two judges in a music competition are as below.

$R_1: 1 \quad 2 \quad 3$

$R_2: 3 \quad 2 \quad 1$ The coefficient of rank correlation equals to

- a) -0.5 b) 0.5 c) -1 d) 1

Mark only one oval.

- a)
 b)
 c)
 d)

41. Untitled Question

Mark only one oval.

- Option 1

42. Q

If r is Karl Pearson's Coefficient of Correlation of a bivariate data then which of the following is always true?

- a) $-0.5 \leq r \leq 0.5$ b) $-1 \leq r \leq 0$ c) $0 \leq r \leq 1$ d) $-1 \leq r \leq 1$

Mark only one oval.

- (a)
- (b)
- (c)
- (d)

43.

If b_{yx} is the regression coefficient of y on x

regression line then b_{yx} is equals to

- a) $\frac{Cov(x,y)}{\sigma_x \sigma_y}$ b) $\frac{Cov(x,y)}{(\sigma_x)^2}$ c) $\frac{Cov(x,y)}{(\sigma_y)^2}$ d) $\frac{Cov(x,y)}{(\sigma_x \sigma_y)^2}$

Mark only one oval.

- (a)
- (b)
- (c)
- (d)

44.

If b_{yx} is the regression coefficient of y on x
regression line then b_{yx} is equals to

- a) $r \frac{\sigma_y}{\sigma_x}$ b) $r \frac{\sigma_x}{\sigma_y}$ c) $\frac{\sigma_x}{\sigma_y}$ d) $\frac{\sigma_y}{\sigma_x}$

Mark only one oval.

- (a)
 (b)
 (c)
 (d)

45.

If a bivariate data is plotted on a graph paper then
the resultant diagram is called

- a) Pie diagram b) Time Series Graph
c) Scatter Diagram d) Regression line

Mark only one oval.

- (a)
 (b)
 (c)
 (d)

46.

The slope of regression equation of x on y line is

- a) b_{yx} b) b_{xy} c) $\frac{1}{b_{yx}}$ d) $\frac{1}{b_{xy}}$

Mark only one oval.

- (a)
 (b)
 (c)
 (d)

47.

For a given bivariate data, if regression line of y on x

is $2x-y-1=0$ then b_{yx} equals to

- a) $\frac{2}{3}$ b) $\frac{3}{2}$ c) $\frac{1}{2}$ d) 2

Mark only one oval.

- (a)
 (b)
 (c)
 (d)

48.

For a given bivariate data, if regression line of y on x is $3x+y=14$ then the most likely value of y when $x=2$ is

- a) 11 b) 8 c) 5 d) 2

Mark only one oval.

- (a)
 (b)
 (c)
 (d)

49.

For a given bivariate data, if regression line of x on y is $x-2y = 0$ then b_{xy} equals to

- a) $\frac{2}{3}$ b) $\frac{3}{2}$ c) $\frac{1}{2}$ d) 2

Mark only one oval.

- (a)
 (b)
 (c)
 (d)

50.

For a given bivariate data, if regression line of x on y is $2x-y-15=0$ then the most likely value of x when $y=5$ equals to

- a) 10 b) 11 c) 12 d) 13

Mark only one oval.

- (a)
- (b)
- (c)
- (d)

51.

If $\sigma_x = 4$, $\sigma_y = 25$, $\text{cov}(x, y)=70$ then the coefficient of correlation equals to

- a) 0.4 b) 0.5 c) 0.6 d) 0.7

Mark only one oval.

- (a)
- (b)
- (c)
- (d)