



RAN - 2008000204060001

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S. Y. B. Com (Honors) (Sem. - IV) Examination April - 2023

Statistics : Paper - II

Business statistics

Time: 2 Hours]

[Total Marks: 50

સૂચના : / Instructions

(1)

નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the details of signs on your answer book

Name of the Examination:

S. Y. B. Com (Honors) (Sem. - IV)

Name of the Subject :

Statistics : Paper - II Business statistics

Subject Code No.: **2008000204060001**

Seat No.:

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Student's Signature

- (2) All the questions are compulsory.
- (3) Figures to the right indicate full marks.
- (4) Statistical tables will be supplied on request.
- (5) Simple calculator can be used.

Q. 1. A. Under what conditions binomial distribution tends to poisson distribution? Give properties of poisson distribution. **4**

B. A particular train reaches the destination in time in 80 percent of the times. A person travels 4 times in that train. Find the probability that he will reach the destination in time, for at least 3 times. **4**

C. In a normal distribution Mean = 150 and standard deviation = 30 then find the value of $P(x \leq 180 | x \geq 150)$. **5**

Q. 2. A. What is regression? Discuss the properties of regression coefficients. 4

B. Calculate Karl Pearson's coefficient of correlation between age and marks of students from the data given below: 6

Marks	Age in years				
	18	19	20	21	22
20-25	10	15	-	-	-
15-20	-	10	23	-	-
10-15	-	-	7	5	-
5-10	-	-	-	3	2
0-5	-	-	-	3	2

C. The following data is about marks of 100 students in science and mathematics in nine Standard examination of a school. 3

Subject	Arithmetic Mean	Standard Deviation
Science	65	5
Mathematics	68	7

Coefficient of correlation between marks of two subjects are 0.7.
Find both lines of regression.

Q. 3. A. What is Business forecasting? Explain clearly its role in business. 5

B. Fit a second-degree polynomial $Y = a + bx + cx^2$ for the following population data of a City. Forecast the value of population for the year 2000. 7

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999
Population (in lakhs)	6	6	5	3	6	8	5	8	10

(Take the Year 1995 as the working origin)

Q. 4. A. What are index numbers? Discuss uses of Index Numbers.

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B. Construct price index number for the following data by weighted average of price relative method. (Using arithmetic mean)

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Commodities	Current year price (in Rs.)	Base year price (in Rs.)	Weights
A	55	40	25
B	66	45	30
C	79	63	15
D	15	10	20
E	15	18	10

C. Using the data given below calculate price index numbers for the current year by

5

- (1) Laspeyre's formula
- (2) Fisher's formula

Commodities	Base year		Current year	
	Price	Quantity	Price	Quantity
A	15	10	25	12
B	40	15	55	10
C	35	25	40	30
D	60	10	65	15