



‘সম্মানী শ্রদ্ধা: সমিতি: সম্মানী’

UNIVERSITY OF NORTH BENGAL
B.Sc. Minor/Dsc 3rd Semester Examination, 2025

STATMIN303/STATDSC303-STATISTICS
DESCRIPTIVE STATISTICS-II

Time Allotted: 2 Hours 30 Minutes

Full Marks: 60

The figures in the margin indicate full marks.

1. Answer any **four** questions from the following: 3×4 = 12
 - (a) What is scatter diagram?
 - (b) What do you mean by correlation?
 - (c) What is rank?
 - (d) Write example of positive and negative correlation.
 - (e) What is correlation index?
 - (f) What do you mean by raw and central moment?

2. Answer any **four** questions from the following: 6×4 = 24
 - (a) Prove that correlation coefficient is independent of change of origin and change of scale.
 - (b) Correlation coefficient is the geometric mean between the regression coefficients.
 - (c) If one of the regression coefficients is greater than 1, the other must be less than 1.
 - (d) The modulus value of the arithmetic mean of the regression coefficient is not less than the modulus value of the correlation coefficient r .
 - (e) Prove that, $\beta_2 \geq \beta_1 + 1$, where the symbols have their usual meanings.
 - (f) Prove that regression coefficients are independent of the change of origin but not of scale.

3. Answer any **two** questions from the following: 12×2 = 24
 - (a) What is r^{th} order moment about an arbitrary origin A ? Establish the relation between central and raw moment. Write the expression for the first four central moments in terms of raw moments.
 - (b) (i) If r denotes the correlation coefficient between two variables x and y , then show that $-1 \leq r \leq 1$.
(ii) What do you mean by regression coefficients of x on y ? Prove that if θ be the angle between the two regression lines then $\tan \theta = \left(\frac{1-r^2}{r} \cdot \frac{s_x s_y}{s_x^2 + s_y^2} \right)$.
 - (c) The two regression equations are $8x + 10y + 66 = 0$ and $40x - 18y = 214$. Also sd of x is 3. Find (i) the average value of x and y , (ii) correlation coefficient between two variables, (iii) sd of y .
 - (d) What do you mean by rank correlation? Prove that, $R = 1 - \frac{6\sum d^2}{n(n-1)}$, where the symbols have their usual meanings.

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UNIVERSITY OF NORTH BENGAL

B.Sc. Minor/Dsc 2nd Semester Examination, 2025

STATMIN202/STATDSC202-STATISTICS**PROBABILITY AND PROBABILITY DISTRIBUTION-I**

Time Allotted: 2 Hours 30 Minutes

Full Marks: 60

*The figures in the margin indicate full marks.***GROUP-A**1. Answer any *four* questions:

3×4 = 12

- If $P(A \cup B) = \frac{5}{6}$, $P(A \cap B) = \frac{1}{3}$ and $P(\bar{A}^C) = \frac{1}{2}$, then show that A and B are independent.
- State two properties of hypergeometric distribution.
- For a binomial distribution with mean 5 and S.D 2, find the mode.
- Show that the chance of throwing an odd number with a die is $\frac{1}{2}$.
- What is the chance that a non leap year selected at random will contain 53 Sundays?
- If events A and B are not mutually exclusive, show that $P(AB) \geq P(A) + P(B) - 1$.
- Arithmetic mean and standard deviation of a binomial distribution are 4 and $\sqrt{8/3}$ respectively. Find the values of n and p .

GROUP-B2. Answer any *four* questions:

6×4 = 24

- Prove that the variance of binomial distribution is npq .
- State and prove Bayes' Theorem.
- Two cards are drawn from a full pack of 52 cards. Find the probability when (i) both are red cards (ii) one is heart and other is a diamond.
- Three balls are drawn at random from a bag containing 6 blue and 4 red balls. What is the chance that two balls are blue and one is red?
- Find the probability that at most 5 defective fuses will be found in a box of 200 fuses, if experience show that 2% of such fuses are defective.

- (f) Prove that recurrence relation between the moments of Poisson distribution is given by

$$\mu_{r+1} = \lambda \left(r\mu_{r-1} + \frac{d\mu_r}{d\lambda} \right)$$

where μ_r is the r -th moment about mean λ .

- (g) If X follows binomial distribution with parameter n and p then prove that

$$P[X \text{ is even}] = \frac{1}{2}[1 + (q - p)^n]$$

where $p + q = 1$.

GROUP-C

3. Answer any *two* questions: 12×2 = 24

- (a) (i) The probability of solving a problem by three students are 0.25, 0.6 and 0.8. What is the probability of solving the problem if all of them try independently? 6

- (ii) If X is a Poisson variate such that $P(X = 2) = 9P(X = 4) + 90P(X = 6)$. Find the mean of X . 6

- (b) A random variable X has the following probability distribution: 12

X	0	1	2	3	4	5	6	7
$P(X)$	0	k	$2k$	$2k$	$3k$	k^2	$2k^2$	$7k^2 + k$

Find (i) k , (ii) $P(X \geq 6)$ and (iii) $P(1 \leq X < 5)$.

- (c) (i) Let X be a binomially distributed random variable with parameter n and p . For what value of p is $\text{var}(X)$ a maximum, if you assume that n is fixed? 6

- (ii) Derive Poisson distribution as the limit of binomial distribution. 6

- (d) Show that the mean and variance are equal of the Poisson distribution. 12

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UNIVERSITY OF NORTH BENGAL

B.Sc. Minor 2nd Semester Examination, 2025

USTAMIN10001-STATISTICS

STATISTICAL METHODS AND PROBABILITY-I

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

1. Answer any *five* questions from the following: 1×5 = 5
 - (a) What is Primary data?
 - (b) What do you mean by Statistics?
 - (c) What is central moment?
 - (d) What is raw moment?
 - (e) What is the chance that a leap year selected at random will contain 53 Sundays?
 - (f) What is measure of dispersion?
 - (g) What is data?
 - (h) What are the different measures of central tendency?

2. Answer any *three* questions from the following: 5×3 = 15
 - (a) Prove that, $\beta_2 = \beta_1$, where the symbols have their usual meanings.
 - (b) Write a short note on Histogram.
 - (c) State and prove Bayes' theorem.
 - (d) Write a short note on measures of relative dispersion.
 - (e) A coin is tossed until a head appears. What is the expectation of the number of tosses?

3. Answer any *two* questions from the following: 10×2 = 20
 - (a) What is standard deviation? A group of 100 items has mean 60 and variance 25. If the mean and sd of the 1st 50 items are 61 and 4.5, find the mean and sd of the remaining 50 items.
 - (b) (i) A point P is taken at random in a line AB of length $2a$. Find the mathematical expectation of $AP \cdot PB$ and that of the difference of $|AP - PB|$.
(ii) From a pack of 52 cards, an odd number card is drawn. Find the probability that these consist of half of red and half of black.
 - (c) Prove that mean deviation is least when taken about median. Calculate the mean deviation of the following values about the median:
8, 15, 53, 49, 19, 62, 7, 15, 95, 77
 - (d) What is r th order moment about an arbitrary origin A ? Establish the relation between central and raw moment. Write the expression for the first four central moments in terms of raw moments.

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UNIVERSITY OF NORTH BENGAL

B.Sc. Minor 4th Semester Examination, 2025

USTAMIN20002-STATISTICS

STATISTICAL METHODS AND PROBABILITY-II

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

GROUP-A

1. Answer any *five* questions:

1×5 = 5

- What do you mean by rank correlation?
- What is a Scatter Diagram?
- Give chief features of the normal curve.
- The probability density function of a random variable X is

$$f(x) = \frac{1}{\theta} e^{-\frac{x}{\theta}}, \quad x > 0, \theta > 0$$

$$= 0, \quad \text{otherwise}$$

Find $E(X^2)$.

- The mean and variance of a binomial variate X are 4 and $\frac{4}{3}$. Find $P(X=1)$.
- State two properties of hypergeometric distribution.
- For binomial distribution with mean 5 and S.D. 2, find the mode.
- The mean and variance of X are 10 and 4 respectively. Find the mean and variance of $5-2X$.

GROUP-B

2. Answer any *three* questions:

5×3 = 15

- If X and Y are two continuous random variables, prove that

$$E(X+Y) = E(X) + E(Y)$$

- Find the mean and variance of Poisson distribution.
- A continuous random variable X has probability density function

$$f(x) = \frac{1}{2} - ax, \quad 0 \leq x \leq 4$$

$$= 0, \quad \text{elsewhere}$$

where a is a constant. Determine the value of a and the probability that X lies between 2 and 3.

- (d) Prove that correlation coefficient lies between 0 and 1.
 (e) Prove that recurrence relation between the moments of Poisson distribution is given by

$$\mu_{r+1} = \lambda \left(r\mu_{r-1} + \frac{d\mu_r}{d\lambda} \right)$$

where μ_r is the r -th moment about the mean λ .

GROUP-C

3. Answer any **two** questions: 10×2 = 20
- (a) You are given that the variance of x is 9. The regression equation are 10
 $8x - 10y + 66 = 0$ and $40x - 18y = 214$. Find the
 (i) average values of x and y ,
 (ii) correlation coefficient between the two variables, and
 (iii) standard deviation of y .
- (b) What do you mean by regression coefficient of x on y ? Prove that the angle θ 10
 between the two regression lines is given by

$$\theta = \tan^{-1} \left(\frac{1-r^2}{r} \cdot \frac{\sigma_x \sigma_y}{\sigma_x^2 + \sigma_y^2} \right)$$

where the symbols have their usual meanings.

- (c) Show that the mean, median and mode are equal of normal distribution. 10
- (d) (i) Find the probability that at most 5 defective fuses will be found in a box of 5
 200 fuses, if experience show that 2% of such fuses are defective.
- (ii) Let the variable X have the distribution $P(X=0) = P(X=2) = p$, 5
 $P(X=1) = 1-2p$, for $0 \leq p \leq \frac{1}{2}$. For what value of p is the $\text{var}(X)$
 maximum?

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UNIVERSITY OF NORTH BENGAL
B.Sc. Minor 2nd Semester Examination, 2024

USTAMIN10001-STATISTICS

STATISTICAL METHODS AND PROBABILITY-I

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

GROUP-A

1. Answer any *five* questions:

1×5 = 5

- What do you mean by Statistics?
- What is primary data?
- What is geometric mean?
- What do you mean by measure of central tendency?
- What is a random experiment?
- What do you mean by mutually exclusive events?
- A coin is tossed 4 times. Find the probability of obtaining one head.
- The mean and the variance of X are 10 and 4 respectively. Find the mean of $5 - 2X$.

GROUP-B

2. Answer any *three* questions:

5×3 = 15

- State and prove Bayes' theorem.
- From a pack of 52 cards, an even number card is drawn. Find the probability that these consist a half of red and half of black.
- Prove that standard deviation is independent of the change of origin but not of scale.
- Calculate median of the data:

Class	0-20	20-40	40-60	60-80	80-100
Frequency	8	15	6	7	5

- Find the probability that there may be 53 Sundays in a Leap year.

GROUP-C

3. Answer any *two* questions:

10×2 = 20

- (a) What is r th moment about an arbitrary origin? Establish the relation between central and raw moments. What are the expressions for the first four central moments in terms of raw moments?
- (b) (i) A coin is tossed until a head appear. What is the expectation of the number of tossed required?
(ii) Two cards are drawn from a full pack of 52 cards. Find the probability that one is a diamond and the other is a heart.
- (c) (i) What is skewness? What are the different measures of skewness?
(ii) Prove that $\beta_2 \geq \beta_1 + 1$.
- (d) (i) A group of 100 items has mean 60 and variance 25. If the mean of the 1st 50 items is 61 and sd is 4.5, find the mean and sd of the other 50 items.
(ii) Write a short note on ogive and histogram.

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সম্মানো মন্ত্র: সমিতি: সমানী
UNIVERSITY OF NORTH BENGAL
 B.Com. Minor 2nd Semester Examination, 2024

UACFMIN12002/UMNGMIN12002-COMMERCE

BUSINESS STATISTICS-I

Time Allotted: 2 Hours 30 Minutes

Full Marks: 60

The figures in the margin indicate full marks.

GROUP-A / বিভাগ-ক / খণ্ড-ক

1. Answer any *four* questions:

3×4 = 12

যে-কোন চারটি প্রশ্নের উত্তর দাও:

কোন চারটি প্রশ্নের উত্তর লেখুন:

(a) Distinguish between Primary data and Secondary data.

3

Primary data এবং Secondary data-র মধ্যে পার্থক্য নির্ণয় কর।
 প্রাথমিক ডাটা র সেকেন্ডারী ডাটা বীচ ভিন্নতা লেখুন।

(b) Find the Harmonic Mean (H.M.) of 3, 6, 12 and 15.

3

3, 6, 12 র 15 কী Harmonic Mean (H.M.) পতা লগাউন।

(c) Find the quartile deviation of the following observations:

3

নিম্ন অবলোকনহরু কী চতুর্থক বিচলন পতা গনুন:

Marks: 11, 12, 27, 21, 17, 14, 19, 30, 28, 32, 33

(d) Find the correlation coefficient if

3

$$\sigma_x^2 = 6.25, \sigma_y^2 = 4, \text{cov}(x, y) = 0.9$$

(e) If $Q_1 = 26$, $Q_2 = 46$ and $Q_3 = 76$, find skewness.

3

(f) What are the uses of cost of Living Index Number?

3

জীবন যাচার ব্যয় নির্বাহী সূচক সংখ্যার ব্যবহার কি কি?

জীবনকী লাগত সূচককী নম্বরকী উপযোগ কে হে?

GROUP-B / বিভাগ-খ / খণ্ড-খ

2. Answer any *four* questions:

6×4 = 24

যে-কোন চারটি প্রশ্নের উত্তর দাও:

কোন চারটি প্রশ্নের উত্তর লেখুন:

- (a) In the estimation of regression equations of two variables
- X
- and
- Y
- , the following results were obtained:

6

$$\Sigma X = 900, \Sigma Y = 700, N = 10, \Sigma x^2 = 6360, \Sigma y^2 = 2860 \text{ and } \Sigma xy = 3900$$

Obtain the two regression equations.

- (b) Median of the following distribution is 24.2. Find
- f_2
- :

6

x :	10-14	15-19	20-24	25-29	30-34	35-39
f :	5	f_2	4	8	4	3

- (c) Calculate the chain base Index Numbers chained to 2019 from the average price of following three commodities:

6

Commodities	2019	2020	2021	2022
A	5	8	10	12
B	3	6	8	10
C	2	3	5	7

- (d) The mean and S.D. of 100 observations were found to be 40.1 and 5.0 respectively. It was later found that one number was wrongly copied as 50 instead of 40. Find the corrected mean and S.D.

6

- (e) What are the advantages of diagrammatic presentation of data?

6

তথ্যের চিত্রাঙ্কন উপস্থাপনার সুবিধাগুলি কি কি?

ডাটাকো রেখচিত্র প্রস্তুতীকরণের ফাইদাহরু কে হুন?

- (f) Calculate Rank Correlation Coefficient for the following data:

6

x :	59	69	39	49	29
y :	79	69	59	49	39

GROUP-C / বিভাগ-গ / খণ্ড-গ

Answer any *two* questions

12×2 = 24

যে-কোন দুটি প্রশ্নের উত্তর দাও

কোন দুইটি প্রশ্নের উত্তর লেখুন

3. (a) Calculate the first four moment about 6 for the following frequency distribution:

6+6

x :	4	5	7	9
f :	2	4	3	1

- (b) From the following information find Fisher's ideal index number:

Commodity	Base year		Current Year	
	Price (₹)	Quantity (kg)	Price (₹)	Quantity (kg)
A	1	6	5	8
B	2	7	4	7
C	3	8	3	6
D	4	9	2	5

7+5

4. (a) Find the Co-efficient of Correlation from the following data:

x:	10	12	13	16	17	20	25
y:	19	22	24	27	29	33	37

- (b) Calculate Geometric Mean (G.M.) from the following data:

Roll No.:	1	2	3	4	5	6
Marks:	5	15	25	35	45	55

8+4

5. (a) Calculate Standard Deviation (S.D.) of the following frequency distribution:

Marks:	0-10	10-20	20-30	30-40	40-50
No. of Students:	5	8	15	16	6

- (b) The following are the index numbers of prices of rice taking 2020 as base:

Year:	2019	2020	2021	2022	2023
Index Number:	80	100	125	180	250

Shift the base to 2021 and obtain the new index numbers.

3+3+6

6. (a) Write notes on:

টীকা লেখ:

টিপ্পণী লেখুনোহো:

- (i) Population and Sample
Population ও Sample
- (ii) Scatter Diagram
স্থিতি আরেখ

- (b) Find the mode from the following cumulative frequency distribution:

Marks	No. of Students
Less than 10	3
Less than 20	8
Less than 30	17
Less than 40	20
Less than 50	22

—x—



UNIVERSITY OF NORTH BENGAL
B.Com. Honours 2nd Semester Examination, 2023

GE2-COMMERCE

STATISTICS

NEW SYLLABUS

Time Allotted: 2 Hours

Full Marks: 60

The figures in the margin indicate full marks.

GROUP-A

Answer any two questions

12×2 = 24

12

1. Compute Laspeyre's, Paasche's and Fisher's Index numbers from the following data. Show that Fisher's number satisfies the time reversal test:

Items	P ₀	Q ₀	P ₁	Q ₁
A	6	50	10	56
B	2	100	2	120
C	4	60	6	60
D	10	30	12	24
E	8	40	12	36

2. (a) The marks of the students are given as follows. Calculate the Correlation Coefficient:

6+6

Math:	23	27	28	29	30	31	33
Eco:	18	22	23	24	25	26	28

- (b) Performance of ten competitors in a beauty competition is ranked by three Judges in the following order use Spearman rank correlation co-efficient to determine the correlation and comment on the result:

1st Judge:	1	6	5	10	3	2	4	9	7	8
2nd Judge:	3	5	8	4	7	10	2	1	6	9
3rd Judge:	6	4	9	8	1	2	3	10	5	7

3. (a) Prove that standard deviation is independent of any change of origin but is dependent on change of scale.
(b) Derive the regression co-efficient with the help of the least square principles.

6+6

4. (a) Distinguish between mutually exclusive and independent events. Illustrate with examples.
(b) Find the probability of drawing a white ball in the second draw without replacement of the ball in the first draw from a bag containing 6 white and 4 red balls.

6+6

GROUP-B

5. Answer any *four* questions:

6×4 = 24

- (a) A class consists of 50 students out of which the number of girl students is 10. In the class 2 girls and 5 boys are rank holders in the previous examination. If a student is selected at random from the class and is found to have rank holder, what is the probability that the student selected is a girl? 6
- (b) From the data show that Paasche's formula does not satisfy the Factor Reversal Test: 6

Commodity	Price		Quantity	
	Base	Current	Base	Current
A	6	10	50	56
B	2	2	100	120
C	4	6	60	60
D	10	12	30	24
E	8	12	40	36

- (c) Using regression co-efficient, find regression equations of the following data: 6

X:	1	1.5	2	2.5	3	3.5	4
Y:	5.3	5.7	6.3	7.2	8.2	8.7	8.4

- (d) Find the co-efficient of skewness from the following data: 6

X:	0-10	10-20	20-30	30-40	40-50
Y:	5	10	12	15	20

- (e) Find co-efficient of correlation from the following data: 6

$$\sum X = 56, \sum Y = 40, \sum X^2 = 524, \sum Y^2 = 256, \sum XY = 364, N = 8.$$

- (f) Write the properties of normal distribution curve. 6

GROUP-C

6. Answer any *four* questions:

3×4 = 12

- (a) Distinguish between population and sample with proper example. 3
- (b) Two coins are tossed simultaneously. Find the probability of getting the same face on both the coins. 3
- (c) Co-efficient of correlation between x and y is 0.52, their co-variance is +7.8. If the variance of x is 16, find the standard deviation of y . 3
- (d) From some financial statistics, it is found that the monthly average electricity charges was ₹2,460 and S.D. is ₹120. The monthly average of direct wages was ₹42,000 and S.D. is ₹1,200. State which is more variable with proper reasons? 3
- (e) What is cost of living index and how is it calculated? 3
- (f) Out of the three measures of AM, Median and Mode, which is better and why? 3

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UNIVERSITY OF NORTH BENGAL
B.Com. General Part-II Examination, 2019

B.COM.

PAPER-2G9

BUSINESS STATISTICS

Time Allotted: 2 Hours

Full Marks: 50

*The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.
All symbols are of usual significance.*

GROUP-A

বিভাগ-ক

খণ্ড-ক

Answer any two questions

15×2 = 30

যে-কোন দুটি প্রশ্নের উত্তর দাও

কোন দুইখণ্ড প্রশ্নের উত্তর লেখ

1. (a) The following data relate to sales of SIL Co. Ltd.

8+7 = 15

Year:	2010	2011	2012	2013	2014
Sales (₹ in lakh):	10	20	30	60	50

Fit a straight line trend by the method of least squares and tabulate the trend values.

Estimate the likely sales for the year 2016.

ইংরেজী প্রশ্ন দেখ।

অঙ্কগ্রেজী প্রশ্ন হের।

- (b) From the following data, calculate the variance:

Marks:	50-59	60-69	70-79	80-89
No of Students:	26	16	14	24

ইংরেজী প্রশ্ন দেখ।

অঙ্কগ্রেজী প্রশ্ন হের।

2. (a) Find coefficient of correlation from the following information:

7+8 = 15

$$\sum X=125, \sum Y=80, n=10, \sum X^2=1,585, \sum Y^2=650 \text{ and } \sum XY=1,007.$$

ইংরেজী প্রশ্ন দেখ।

অঙ্কগ্রেজী প্রশ্ন হের।

- (b) Find the regression equation of x on y and y on x from the following data:

$$b_{xy} = -1.2, b_{yx} = -0.3, \bar{x} = 12 \text{ and } \bar{y} = 10.$$

ইংরাজী প্রশ্ন দেখ।

অঙ্কগ্রেজী প্রশ্ন হের।

3. From the following cumulative frequency distribution of marks in mathematics $5+5+5 = 15$ obtained by 22 students, calculate

(a) Arithmetic mean

(b) Median and

(c) Mode.

Marks:	Below 10	Below 20	Below 30	Below 40	Below 50
No. of Students:	3	8	17	20	22

ইংরাজী প্রশ্ন দেখ।

অঙ্কগ্রেজী প্রশ্ন হের।

4. (a) From the following data, find index numbers by chain base method (base year- $8+7 = 15$ 2010):

Year:	2010	2011	2012	2013	2014	2015	2016
Price:	25	27	30	24	28	29	31

ইংরাজী প্রশ্ন দেখ।

অঙ্কগ্রেজী প্রশ্ন হের।

- (b) Monthly income of 300 families are given below:

Monthly Income (₹):	130-140	140-150	150-160	160-170	170-180
No. of families:	129	?	40	?	15

The value of median is 135.10, find the missing frequencies.

ইংরাজী প্রশ্ন দেখ।

অঙ্কগ্রেজী প্রশ্ন হের।

GROUP-B

বিভাগ-খ

খণ্ড-খ

5. Answer any *two* questions:

$5 \times 2 = 10$

যে-কোন দুটি প্রশ্নের উত্তর দাও:

কোন দুইবটা প্রশ্নের উত্তর লেখ

- (a) If the arithmetic mean (AM) and the geometric mean (GM) of two values are 5 and 4 respectively, find the harmonic mean (HM).

ইংরাজী প্রশ্ন দেখ।

অঙ্কগ্রেজী প্রশ্ন হের।

- (b) From the following data, calculate mean deviation:

Roll No:	1	2	3	4	5	6
Marks:	25	55	5	45	15	35

ইংরাজী প্রশ্ন দেখ।

অঙ্গ্রেজী প্রশ্ন হের।

- (c) The Mean annual Salary of all employees in a company is Rs. 25000. The mean salaries of male and female employees are Rs. 27000 and Rs. 17000 respectively. Find the percentages of males and females employed in the company.

ইংরাজী প্রশ্ন দেখ।

অঙ্গ্রেজী প্রশ্ন হের।

- (d) If $Q_1 = 26$ and $Q_3 = 76$ and co-efficient of skewness = 0.2, find the median.

ইংরাজী প্রশ্ন দেখ।

অঙ্গ্রেজী প্রশ্ন হের।

GROUP-C

বিভাগ-গ

খণ্ড-গ

6. Answer any *five* questions:

2×5 = 10

যে-কোন পাঁচটি প্রশ্নের উত্তর দাও:

কোন পাঁচটি প্রশ্নের উত্তর লেখ:

- (a) Calculate coefficient of quartile deviation if $Q_1 = 25$, $Q_3 = 45$.

যদি $Q_1 = 25$, $Q_3 = 45$, চতুর্থক পার্থক্যের গুণক নির্ণয় কর।

অঙ্গ্রেজী প্রশ্ন হের।

- (b) Given $b_{xy} = -0.5$ and $b_{yx} = -1.4$, find r (correlation co-efficient) between x and y .

$b_{xy} = -0.5$ এবং $b_{yx} = -1.4$, হলে সহপরিবর্তনের গুণক নির্ণয় কর।

অঙ্গ্রেজী প্রশ্ন হের।

- (c) Calculate mode from the given data:

mean = 49.50, median = 52.70.

প্রদত্ত তথ্যের ভিত্তিতে সংখ্যাগুরু মান নির্ণয় কর।

mean = 49.50, median = 52.70.

অঙ্গ্রেজী প্রশ্ন হের।

- (d) Find γ , if $\sigma_x=10$, $\sigma_y=12$ and $b_{xy}=-0.8$

যদি $\sigma_x=10$, $\sigma_y=12$ এবং $b_{xy}=-0.8$ তাহলে সহপরিবর্তনের গুণাঙ্কের মান কত?

অঙ্গ্রেজী প্রশ্ন হে।

- (e) Find G.M. of the three numbers 8, 36 and 48

8, 36 এবং 48-এর গুণোত্তর গড় নির্ণয় কর।

অঙ্গ্রেজী প্রশ্ন হে।

- (f) Find coefficient of variation from the following data:

mean = 40, variance = 4.

যদি Mean = 40 এবং Variance = 4 তাহলে পার্থক্য গুণাঙ্কের মান নির্ণয় কর।

অঙ্গ্রেজী প্রশ্ন হে।

- (g) Find Karl Pearson's measure of Skewness, if mean = 24.78 Mode = 25 and S.D. = 6.3

Karl Pearson-এর পদ্ধতির মাধ্যমে Skewness-এর মান নির্ণয় কর, যদি mean = 24.78, Mode = 25 এবং S.D. = 6.3 হয়।

অঙ্গ্রেজী প্রশ্ন হে।

- (h) If in a distribution, $n=10$, $\sum x=20$ $\sum x^2=200$, then find the value of S.D.

একটি রাশির $n=10$, $\sum x=20$ এবং $\sum x^2=200$ হলে, সমক পার্থক্যের মান নির্ণয় কর।

অঙ্গ্রেজী প্রশ্ন হে।

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