Printed Page:- 04 **Subject Code:- AMIBA0203**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

MBA (Integrated)

SEM: II - THEORY EXAMINATION (2022-2023)

Subject: Introduction to Business Statistics

Time: 2.5 Hours **Max. Marks: 60**

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

1. *This Question paper comprises of* **three Sections -A, B, & C.** *It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*

2. *Maximum marks for each question are indicated on right -hand side of each question.*

3. *Illustrate your answers with neat sketches wherever necessary.*

4. *Assume suitable data if necessary.*

5. *Preferably, write the answers in sequential order.*

6. *No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.*

SECTION A **15**

1. Attempt all parts:-

1-a. The mean of x+2, x+3, x+4 and x-2 is (CO1) 1

(a) (x+7)/4

(b) (2x+7)/4

(c) (3x+7)/4

(d) (4x+7)/4

1-b. If $b_{yx} > 1$, then b_{xy} is (CO2) 1

(a) Greater than one

(b) Less than one

(c) Equal to 1

(d) Equal to zero

1-c. What is the probability of an impossible event? (CO3) 1

(a) 1

(b) 0

(c) Insufficient data

(d) Not defined

1-d. If 'm ' is the mean of a Poisson Distribution, then variance is given by _____ (CO4) 1

(a) m

(b) m^2

(c) $m^{1/2}$

(d) m/2

1-e. A statement whose validity is tested on the basis of a sample is called? (CO5) 1

(a) Null Hypothesis

(b) Statistical Hypothesis

(c) Simple Hypothesis

(d) Composite Hypothesis

2. Attempt all parts:-

2.a. Calculate Standard Deviation for the following sample data 2, 4, 6, 8, 10 & 12. (CO1) 2

2.b. Prove that If one of the regression coefficients is greater than unity, the other must be less than unity. (CO2) 2

2.c. Explain conditional Probability. (CO3) 2

2.d. For a binomial distribution n=10, q=0.4, then find out the mean. (CO4) 2

2.e. What do you mean by degrees of freedom? (CO5) 2

SECTION B **15**

3. Answer any <u>three</u> of the following:-

3-a. Calculate the mean deviation from median for the following data: (CO1) 5

Class Interval	50-100	100-150	150-200	200-250	250-300	300-350
Freq.	7	18	25	31	15	4

3-b. Define correlation and explain how the coefficient of correlation is calculated by Karl person's method. What are the limits between which the value of r is found? (CO2) 5

3.c. Write short Notes on (CO3) 5

I. Conditional Probability

II. Mutually exclusive events

3.d. Calculate the Mean of Binomial distribution. (CO4) 5

3.e. A random sample of size 16 has 53 as mean. The sum of squares of the deviation from mean is 135. Can this sample be regarded as taken from the population having 56 as mean? Given that the tabular value for 15 degree of freedom is 2.13 at 5% LOS. (CO5) 5

SECTION C 30

4. Answer any <u>one</u> of the following:-

4-a. Calculate the mode from the following frequency distribution (CO1) 6

Sales in crores	0-4	4-8	8-12	12-16	16-20	20-24
No. of firms	4	6	12	7	6	3

4-b. Find the variance of the following frequency distribution (CO1) 6

Marks	0-10	10-20	20-30	30-40	40-50
No. of students	8	12	15	20	8

5. Answer any <u>one</u> of the following:-

5-a. Given the following data: 6

$N=8, \Sigma X=21, \Sigma X^2= 99, \Sigma Y^2 = 68, \Sigma XY = 36, \Sigma Y = 4$

Using the values,

(i) Find Regression equation of Y on X.

(ii) Estimate Most approximate value of Y for X=10. (CO2)

5-b. Define Regression Analysis. Explain the difference between Correlation and Regression. (CO2) 6

6. Answer any <u>one</u> of the following:-

6-a. Four cards are drawn from a pack of cards. Find the probability that 6

i. All are diamonds

ii. There are two spades and two hearts. (CO3)

6-b. State the addition and multiplication theorem of probability with an example of each case. (CO3) 6

7. Answer any <u>one</u> of the following:-

7-a. If a random variable X follows poisson distribution such that P(X=1)=P(X=2) find: 6

i. The mean of the distribution.

ii. P(X>2). (CO4)

7-b. Fit a Binomial distribution to the following set of observations: (CO4) 6

x	0	1	2	3	4
F	122	60	15	2	1

8. Answer any <u>one</u> of the following:-

8-a. In a sample of 8 observations, the sum of square of deviations from mean is 94.5. In other sample of 10 observations, the sum of squares of deviations from mean is 101.7. Test whether there is a significant difference of variance. Given that the tabulated value for d.f. (7,9) at 5% LOS is 3.29. (CO5) 6

8-b. Intelligence tests were given to two groups of boys and girls: 6

	Mean	S.D.	Size
Girls	75	8	60
Boys	73	10	100

Examine if the difference between mean scores is significant. If the tabulated value is 1.96 at 5% level of significance. (CO5)