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 CARRY OVER THEORY EXAMINATION-AUGUST 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. Which decile represent median (CO1) 1

(a) D_2

(b) D_5

(c) D_6

(d) D_8

1-b. The correlation coefficient is independent of (CO2) 1

(a) Only origin

(b) Both origin and scale

(c) Only scale

(d) None of these

1-c. What are the total outcomes when we throw three coins? (CO3) 1

(a) 4

(b) 8

(c) 5

(d) 7

1-d. The mean of Binomial Distribution is (CO4) 1

(a) n

(b) np

(c) npq

(d) nq

1-e. The probability of Type I error is referred as? (CO5) 1

(a) α

(b) β

(c) 1-β

(d) None of these

2. Attempt all parts:-

2.a. Define Mean, Median and Mode. (CO1) 2

2.b. What do you understand by linear regression? (CO2) 2

2.c. Write the mathematical definition of Probability. (CO3) 2

2.d. Write the formula for Possion probability distribution. (CO4) 2

2.e. Write down the formula of test statistics for t-test difference of means. (CO5) 2

SECTION B **15**

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

3-a. Draw a histogram for the following data distribution: (CO1) 5

Class Intervals	50-60	60-70	70-80	80-90	90-100	100-110
Frequency	30	25	45	15	20	40

3-b. Given the following data: (CO2) 5

N=10, ΣX =15, ΣX^2 =250, ΣY^2 =3200 Σ XY=400, ΣY =110

Using the values, find

(i) Regression equation of Y on X.

(ii) Regression equation of X on Y.

3.c. A drawer contains 50 bolts and 150 nuts. Half of the bolts and half of the nuts are rusted. If one of item is chosen at random, what is the probability that it is rusted or is a bolt? (CO3) 5

3.d. A binomial distribution variable X satisfies the relation 9P(X=4) = P(X=2) when n=6. Find the value of parameter p and q. (CO4) 5

3.e. Define Testing Of hypothesis. Also explain type I error and Type II error. (CO5) 5

SECTION C 30

4. Answer any one of the following:-

4-a. Distinguish between 6

i)Quartiles and Deciles

ii) Deciles and Percentiles

iii) Quartiles and Percentiles (CO1)

4-b. Calculate the Median from the following table (CO1) 6

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of students	15	20	25	24	10	33	71	51

5. Answer any one of the following:-

5-a. Obtain the line of regression x on y for the following data: (CO2) 6

X	1	3	5	7	9
Y	15	18	21	23	22

Estimate the value of X at Y=9.

5-b. Find the coefficient of correlation between the values of X and Y: (CO2) 6

X	1	2	3	4	5
Y	2	4	5	3	6

6. Answer any one of the following:-

6-a. Two cards are drawn from the pack of 52 cards. Find the probability that both are diamonds or both are kings. (CO3) 6

6-b. A bag contains 7 white, 6 red and 5 black balls. Two balls are drawn at random. Find the probability that they will be both be white. (CO3) 6

7. Answer any one of the following:-

7-a. If the probability of hitting a target is 10% and 10 shots are fired independently. What is the probability that the target will be hit at least once? (CO4) 6

7-b. If the probability of a blade being defective is 0.0002, then find the probability that i) one blade is defective, ii) Two blades are defective, among 100 blades using Poisson distribution. (CO4) 6

8. Answer any one of the following:-

8-a. A random sample of 900 members has a mean 3.4cms. Can it be reasonably regarded as a sample from a large population of mean 3.2 cms and S.D. 2.3 cms? Given, the significant value of z at 5% level of significance is 1.96. (CO5) 6

8-b. The lifetime of electric bulbs for a random sample of 10 from a large consignment gave the following data: 6

Items	1	2	3	4	5	6	7	8	9	10
Life (in hrs)	4.2	4.6	3.9	4.1	5.2	3.8	3.9	4.3	4.4	5.6

Can we accept the hypothesis that the average lifetime of bulb is 4000 hrs? Given that the tabulated value at 5% LOS is 2.26 for 9 d.f. (CO5)