Subject Code:- **AMBA0103**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

MBA

SEM: I - CARRY OVER THEORY EXAMINATION JUNE 2023

Subject: Introduction to Business Analytics

Time: 3 Hours   Max. Marks: 100

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   **20**

1. Attempt all parts:-

1-a.   If the Variance of the any series is Var(X) and each observation is multiplied by   1
          a, then what will be the Variance of the new series (CO1)

                 (a) Var(X)

                 (b) a^2 Var(X)

                 (c) a Var(X)

                 (d) None of these

1-b.   Skewness is defined as (CO1)   1

                 (a) Peakness

                 (b) Lack of symmetry

                 (c) Variation

                 (d) None of these

1-c.   The product of two regression coefficients (b_{xy} * b_{yx}) is equal to   1

                 (a) r

                 (b) r^2

(c) r^3

(d) None of these

1-d.   Karl pearson correlation coefficient is (CO2)   1

(a) Independent of change of origin but not scale

(b) Independent of change of scale but not origin

(c) Independent of change of origin and scale

(d) Dependent of change of origin and scale

1-e.   If A and B are independent event, then P(A∩B) is (CO3)   1

(a) P(A)

(b) P(B)

(c) P(A).P(B)

(d) None of these

1-f.   What is the probability of getting a number greater than 6 on a dice? (CO3)   1

(a) 1

(b) $1/3$

(c) 1/2

(d) 0

1-g.   Which one is not a type of index number? (CO4)   1

(a) Price index number

(b) Aggregative index number.

(c) Cost of living index number

(d) Regression coefficient

1-h.   Fire loss in a factory is an example of which component of time series? (CO4)   1

(a) Secular trend

(b) Seasonal Variation

(c) Cyclical Variation

(d) Irregular variation

1-i.   While using Hurwitz criterion, the coefficient of realism (CO5)   1

(a) represents the degree of optimism

(b) represents the degree of pessimism

(c) is the probability of a state of nature

(d) none of these

1-j.   Essential characteristics of a decision model are (CO5)   1

        (a) State of nature

        (b) Course of Action

        (c) Payoff

        (d) All of these

2. Attempt all parts:-

2.a.	What is kurtosis? (CO1)	2
2.b.	Define Correlation. (CO2)	2
2.c.	Give Classical definition of probability.	2
2.d.	Define time reversal test of index number. (CO4)	2
2.e.	Write a short note on strategic decision making. (CO5)	2

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SECTION B   **30**

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

3-a.   Calculate the Mode for the following distribution of monthly rent Paid by   6
Libraries in Karnataka: (CO1)

Monthly rent	500-1000	1000-1500	1500-2000	2000-2500	2500-3000	3000 & above
No.of Library	5	10	8	16	14	12

3-b.   Define Measure of Central Tendency and also its measures. (CO1)   6

3-c.   Define Regression and write down the properties of regression   6
coefficients.(CO2)

3-d.   Calculate rank correlation coefficient from the following data: (CO2)   6

X	15	20	27	13	45	60	20	75
Y	50	30	55	30	25	10	30	70

3.e.   A box contains 6 red, 4 white ad 5 black balls. A person draws 4 balls from the   6
box at random. Find the probability that among the balls drawn there is at least
one ball of each colour. (CO3)

3.f.   What is Index Number? Discuss its utility. (CO4)   6

3.g.   Explain Decision tree and its applications in business. (CO5)   6

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SECTION C   **50**

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

4-a.   Calculate the coefficient of skewness from the following data: (CO1)   10

C.I.	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45

f	5	6	15	10	5	4	3	2

4-b.   Define Statistics and Write down its applications in various fields. (CO1)   10

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

5-a.   You are given following information about expenditure and sale   10

	Advertisement (in Lakhs)	Sale (in Lakhs)
Arithmetic mean	12	100
Standard Deviation	4	11

Correlation coefficient is 0.8 then calculate

   i. Two regression equation

  ii. Find likely sale when advertisement budget is 15 Lakhs Rs.

 iii. What should be the advertisement budget when company wants to attain
    the target of Rs. 120 Lakhs.

5-b.   Find out the regression line of y on x from the following data: 10

X	2	4	6	8	10
Y	5	7	9	8	11

Also estimate y when x = 12 (CO2)

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

6-a.   Define Normal Distribution. With the help of a suitable diagram, list the chief   10
properties of a Normal Distribution.

If scores in an examination were considered as normally distributed with a
mean 75 and a standard deviation of 15. If the lowest passing score is 60. what
percentage of those who took the examination failed to pass it ? Given area
under standard normal curve (between z=0 and z) (CO3)

z	0	0.5	1
Area	0.0000	0.1915	0.3413

6-b.   As a result of a certain experiment, the data obtained were: 10

x	0	1	2	3	4
F	8	32	34	24	5

Fit a Poisson distribution to the above data. (CO3)

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

7-a.   Compute Price index no. using Laspeyre's , Paasche's , Fisher's and Marshall   10
Edgeworth's method when prices of different commodities at different years

are given below:(CO4)

Commodity	Price (1998)	Quantity(1998)	Price(1999)	Quantity(1999)
A	5	25	6	30
B	3	8	4	10
C	2	10	3	8
D	10	4	3	5

7-b.   Define Time series. What are the components of time Series? How would you find out the trend values in a time series by the method of least squares? (CO4)   10

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

8-a.   What is Decision making? What are the characteristics of decision under certainty, uncertainty and risk. (CO5)   10

8-b.   What is AI and also explain machine learning . How AI become the necessity of real life explain with example? (CO5)   10