Printed Page:- **Subject Code:- AMBA0103**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

MBA

SEM: I - THEORY EXAMINATION (2022 - 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. The average of the sum of squares of the deviations about mean is called (CO1) 1

(a) Standard Deviation

(b) Variance

(c) Absolute deviation

(d) Mean deviation

1-b. Which of the statement is true. (CO1) 1

(a) A distribution is symmetric if it can be folded along the vertical axis so that the two sides coincide

(b) In a symmetric distribution, the mean, mode and median all fall at the same point.

(c) In symmetric distribution, skewness is equal to zero

(d) All of above

1-c. Which of the following are true? (CO2) 1

(a) The value of correlation coefficient is lies between -1 to 1

(b) The value of Correlation coefficient is always positive.

(c) The value of Correlation coefficient is always Negative.

(d) None of these.

1-d. Regression coefficient is independent of (CO2) 1

(a) change of origin and scale

(b) change of origin but not scale

(c) change of scale but not origin

(d) None of these

1-e. One card is drawn from a pack of 52 cards. The probability that it is the card of a queen or a spade is (CO3) 1

(a) 1/26

(b) 3/26

(c) 4/13

(d) 3/13

1-f. Distribution whose mean and variance are equal is (CO3) 1

(a) Binomial

(b) Poisson

(c) Normal

(d) None of the above

1-g. In case of shifting of origin in trend equation Y = a+ b x, the value of b: (CO4) 1

(a) changed

(b) remains same

(c) zero

(d) None of these

1-h. Which of the statement is not true? (CO4) 1

(a) Time series is used to study present variation

(b) Time series is used to Study past Behavior of data.

(c) Time series is used to study future Behavior of data.

(d) All of the above

1-i. Decision theory is concerned with (CO5) 1

(a) methods of arriving at an optimal decision

(b) Selecting optimal decision in a sequential manner.

(c) analysis of information that is available

(d) all of these

1-j. A situation in which a decision maker knows all of the possible outcomes of a decision and also knows the probability associated with each outcome is referred to as (CO5) 1

(a) Risk

(b) Uncertainty

(c) Strategy

(d) Certainty.

2. Attempt all parts:-

2.a. What is the difference between descriptive statistics and inferential statistics? (CO1) 2

2.b. Prove that Correlation coefficient is the geometric mean between the regression coefficients. (CO2) 2

2.c. If n is 10 and p and q are 60% and 40% respectively. Find the mean and standard deviation of binomial distribution. (CO3) 2

2.d. What is Time Reversal Test? (CO4) 2

2.e. What are the five decision making skills. (CO5) 2

SECTION B **30**

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

3-a. In the frequency distribution of 100 families given below, However the median is known to be 50. Find the missing frequencies. (CO1) 6

Expenditure:	0-20	20-40	40-60	60-80	80-100
No. of families:	14	?	27	?	15

3-b. Explain the measures of dispersion and. Also write merits and demerits of each. (CO1) 6

3-c. The following data relate to age of employees and the number of days they reported sick in a month- (CO2) 6

Employee	1	2	3	4	5	6	7	8	9	10
Age	30	32	35	40	48	50	52	55	57	61
Sick Days	1	0	2	5	2	4	6	5	7	8

Calculate Karl Pearson coefficient of correlation and interpret it.

3-d. What is the application of correlation and regression. (CO2) 6

3.e. There are three bags. Bag I contains 3 white and 5 black balls. Bag II has 5 white and 7 black balls while bag III contains 9 white and 6 black balls. One white ball is drawn from one of the bags. Find the probability that it is drawn from bag II? (CO3) 6

3.f. Fit a straight-line trend by the method of least square method to the following data: (CO4) 6

Year	1989	1990	1991	1992	1993
Sales (in Lakhs)	35	46	58	36	57

Also obtained the trend values. (Take year 1988 as the working origin).

3.g. What are the qualities of a good decision maker? Write a short note on it. (CO5) 6

SECTION C **50**

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

4-a. Find the Coefficient of Variation if goals scored by two teams A & B in a football session were as follows: (CO1) 10

No. of Goals Scored	0	1	2	3	4
No. of Matches by A	27	9	8	5	4
No. of Matches by B	17	9	5	6	3

Which team is consistence.

4-b. Calculate the first four moments about mean of the following distribution and hence find skewness and kurtosis : (CO1) 10

x	10 – 20	20-30	30-40	40-50	50-60	60-70	70-80
f	1	20	69	108	78	22	2

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

5-a. The equation of two regression lines in a correlation analysis are as follows: 10

3x+2y=26

6x+y=31

A student obtains the mean value (7, 4) and the value of correlation coefficient r=0.5, you agree with him? If not, suggest your results. (CO2)

5-b. From the following data calculate the rank correlation coefficient after making 10

adjustment for tied ranks. (CO2)

X	48	33	40	9	16	16	65	24	16	57
Y	13	13	24	6	15	4	20	9	6	19

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

6-a. As a result of a certain experiment, the data obtained were: (CO3) 10

X	0	1	2	3	4
Y	8	32	34	24	5

Fit a Poisson distribution to the above data.

6-b. State Baye's Theorem. In bolt factory, Machines A, B and C manufacture respectively 25%,35% and 40% of the total. Of their output 5,4 and 2 percent are defective bolts. A bolt is drawn at random from the product and is found to be defective. What is the probability that it was manufactured by machine B. (CO3) 10

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

7-a. Compute the Laspeyre's, Paasche's, Fisher's and Marshall-Edgeworth's index number from the following data for the year 1999: (CO4) 10

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

7-b. What is an index number? Explain basic characteristics of an index number. Explain the significance of index numbers. (CO4) 10

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

8-a. In decision under risk, what do you mean by – 10

i. Decision Tree
ii. Expected Monetary Value (EMV). (CO5)

8-b. How AI become the necessity of real life explain with examples. (CO5) 10