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 - CARRY OVER THEORY EXAMINATION - SEPTEMBER 2022

Subject: Introduction to Business Analytics

Time: 3 Hours Max. Marks: 100

General Instructions:

1. The question paper comprises three sections, A, B, and C. You are expected to answer them as directed.
2. Section A - Question No- 1 is 1 marker & Question No- 2 carries 2 marks each.
3. Section B - Question No-3 is based on external choice carrying 6 marks each.
4. Section C - Questions No. 4-8 are within unit choice questions carrying 10 marks each.
5. 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. Which of the statement is true. (CO1) 1

(a) A symmetric distribution is a type of distribution where the left side of distribution mirrors the right side. In a symmetric distribution mean, mode and median all fall at a same point.

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

(c) If the distribution is symmetric, the mean, the mode and the median are equal and are located at the same position along the horizontal axis.

(d) All of the above.

1-b. Find the mean of the following data: 1

15, 20, 30, 22, 25, 18, 40, 50, 55 and 65. (CO1)

(a) 24

(b) 34

(c) 26

(d) 65

1-c. Which of the following are the type of correlation. (CO2) 1

(a) Positive correlation.

(b) Negative correlation.

(c) Perfect correlation.

(d) All of the above.

1-d. A linear Regression plane is (CO2) 1

(a) x=a+by.

(b) $y^2 = a + bx$

(c) x=a+by+cz.

(d) $x = a + by^2 + cz$

1-e. A and B are two events such that P(A)=0.4 and P(A ⋂ B) = 0.2 , then $P(A \cap \overline{B})$ is equal to (CO3) 1

(a) 0.4

(b) 0.2

(c) 0.6

(d) 0.8

1-f. Two unbiased coins are tossed. What is the probability of getting at most one head? (CO3) 1

(a) 1/2

(b) 1/3

(c) 1/6

(d) 3/4

1-g. Which of the following can't be a component for a time series plot? (CO4) 1

(a) Seasonality.

(b) Trend.

(c) Cyclical.

(d) Noise.

1-h. Fisher Method is (CO4) 1

(a) $\sum p_{01} = \frac{\sum p_0 q_0}{\sum p_1 q_0} \times 100.$

(b) $\sum p_{01} = \frac{\sum p_0 q_1}{\sum p_0 q_0} \times 100.$

(c) $$\sum p_{01} = \frac{\sum p_1}{\sum p_0} \times 100.$$

(d) $$\sum p_{01} = \sqrt{\frac{\sum p_1 q_0}{\sum p_0 q_0} \times \frac{\sum p_1 q_1}{\sum p_0 q_1}} \times 100$$

1-i. A type of decision-making environment is (CO5) 1

(a) certainty

(b) uncertainty

(c) risk

(d) all of these

1-j. Which of the following criterion is not used for decision-making under uncertainty. (CO5) 1

(a) Maximin.

(b) Maximax.

(c) Minimax.

(d) Minimize expected loss.

2. Attempt all parts:-

2.a. What is statistics? (CO1) 2

2.b. Explain the concept of Correlation. (CO2) 2

2.c. What is Multiplicative theorem of probability? (CO3) 2

2.d. What is Time Series? (CO4) 2

2.e. Explain use of AI in Business. (CO5) 2

SECTION B 30

3. Answer any five of the following:-

3-a. You are given the daily profits of 100 shops in a market located in one of the villages of Agra 6

Profit per Shop	0-10	10-20	20-30	30-40	40-50	50-60
No. of Shops	12	18	27	20	17	6

Calculate Mode and Median.

(CO1)

3-b. What are the different components of statistics? How is statistics used in everyday life? Explain with suitable examples. (CO1) 6

3-c. Two lines of regression are given by 7x - 16y + 9 = 0 and -4x + 5y - 3 = 0 and var(x) = 16. Calculate - (i) The mean of x and y (ii) The correlation coefficient. (CO2) 6

3-d. Find the coefficient of correlation between the values of *x and y*: 6

X	1	3	5	7	8	10
Y	8	12	15	17	18	20

(CO2)

3.e. What is Normal Distribution? Discuss the characteristics of Normal Distribution. (CO3) 6

3.f. Fit a linear trend to the following data by the least squares method: (CO4) 6

Year	1990	1992	1994	1996	1998
production	18	21	23	27	16

3.g. What is a good decision making? Explain with examples. (CO5) 6

SECTION C 50

4. Answer any one of the following:-

4-a. What do you mean by central tendency? Describe the methods of measuring the central tendency. (CO1) 10

4-b. Calculate karl pearson's co-efficient of skewness from the following data: 10

Size	1	2	3	4	5	6	7
frequency	10	18	30	25	12	3	2

(CO1)

5. Answer any one of the following:-

5-a. Define Regression Analysis. Explain the difference between Correlation and Regression. (CO2) 10

5-b. Calculate the two regression equations from the following data: - (CO2) 10

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

6. Answer any one of the following:-

6-a. State and prove the theorem of additional probability. A bag contains 7 white, 6 red and 5 black balls . Two balls are drawn at random. Find the probability that they will both be 10

white. (CO3)

6-b. At a parking place the average number of car-arrivals during a specified period of 15 minutes is 2. If the arrival process is well described by a Poisson process, find the probability that during a given period of 15 minutes 10

i. no car will arrive
ii. at least two cars will arrive
iii. at most three cars will arrive
iv. between 1 and 3 cars will arrive (CO3)

7. Answer any one of the following:-

7-a. Calculate the Fishers Ideal Index number from the following data: 10

Commodities	Base Year (2015)		Current Year(2016)	
	Price	Quantity	Price	Quantity
A	12	10	15	12
B	15	7	20	5
C	24	5	20	9
D	5	16	5	14

(CO4)

7-b. What is time series? Explain the various components of the time series. Also give the importance of time series. (CO4) 10

8. Answer any one of the following:-

8-a. What is decision tree? Explain the decision tree with the help of any example. (CO5) 10

8-b. What is Machine learning ? Explain its application in business. (CO5) 10