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MBA

(SEM I) THEORY EXAMINATION 2018-19

BUSINESS STATISTICS AND ANALYTICS

Time: 3 Hours ***Total Marks: 100***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

a. What is the difference between a sample and a population?

b. What is the difference between descriptive statistics and inferential statistics?

c. How do you interpret the first quartile, median, and third quartile?

d. What is meant by the property of shape?

e. What is the difference between a simple event and a joint event?

f. What are the four properties that must be present in order to use the binomial distribution?

g. How do you find the area between two values under the normal curve?

h. What is the interpretation of the *Y* intercept and the slope in the simple linear regression equation?

i. What is the difference between moving averages and exponential smoothing?

j. What is the probability that a leap year selected at random will contain 53 Mondays?

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

a. What are the differences among the mean, median, and mode, and what are the advantages and disadvantages of each?

b. For a distribution, Bowley's coefficient of skewness is - 0.56, Q_1=16.4 and Median = 24.2. What is the coefficient of quartile deviation?

c. "Index Numbers are devices for measuring changes in the magnitude of a group of related variables". Discuss this statement and point out the important uses of index numbers.

d. Discus the role of normal distribution in statistical theory. Bring out the need for having a standard normal curve.

e. An investor is fond of investing in equity shares. During a period of falling prices in the stock exchange, a stock is sold at Rs 120 per share on one day, Rs 105 on the next and Rs 90 on the third day. The investor has purchased 50 shares on the first day, 80 shares on the second day and 100 shares on the third' day. What average price per share did the investor pay?

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

(a) Ten entries are submitted for a competition. Three judges study each entry and list the ten in rank order. Their rankings are as follows:

Entry	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**
Judge First	9	3	7	5	1	6	2	4	10	8
Judge Second	9	1	10	4	3	8	5	2	7	6
Judge Third	6	3	8	7	2	4	1	5	9	10

Calculate the appropriate rank correlation to help you answer the following questions:

(i) Which pair of judges agrees the most?
(ii) Which pair of judges disagrees the most?

(b) Write regression equations of X on Y and of Y on X for the following data -

X	45	48	50	55	65	70	75	72	80	85
Y	25	30	35	30	40	50	45	55	60	65

4. Attempt any *one* part of the following: 10 x 1 = 10

(a) A food processor uses a moving average to forecast next month's demand. Past actual demand(in units) is shown below:

Month	43	44	45	46	47	48	49	50	51
Actual Demand (in Units)	105	106	110	110	114	121	130	128	137

(a) Compute a simple five-month moving average to forecast demand for month 52.

(b) Compute a weighted three-month moving average where the weights are highest for the latest months and descend in order of 3, 2, 1.

(b) Explain the meaning and significance of the concept of correlation. Does correlation always signify casual relationships between two variables? Explain with illustration on what basis can the following correlation be criticized?

5. Attempt any *one* part of the following: 10 x 1 = 10

(a) In decision making under uncertainty explain the following –
- (i) Maximax Criterion
- (ii) Maximin Criterion

(b) The weekly wage of 2000 workmen is normally distribution with mean wage of Rs 70 andwage standard deviation of Rs 5. Estimate the number of workers whose weekly wages are
(a) between Rs 70 and Rs 71
(b) between Rs 69 and Rs 73
(c) more than Rs 72
(d) less than Rs 65

6. Attempt any *one* part of the following: 10 x 1 = 10

(a) 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
(a) no car will arrive
(b) atleast two cars will arrive
(c) atmost three cars will arrive
(d) between 1 and 3 cars will arrive

(b) Define continuous probability distribution. State the properties of the probability density function of a continuous random variable.

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) In decision under risk, what do you mean by –
- (i) Decision Tree
- (ii) Expected Monetary Value (EMV)

(b) A market analyst believes that the stock market has a 0.70 probability of going up in the next year if the economy should do well, and a 0.20 probability of going up if the economy should not do well during the year. The analyst believes that there is a 0.80 probability that the economy will do well in the coming year. What is the probability that stock market will go up next year?