Paper Id: | **270104** | **Roll No:**

MBA/MBA-TM
(SEM-I) THEORY EXAMINATION 2019-20
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**

Qno.	Question	Marks	CO
a.	Discuss coefficient of variation and why it is calculated.	2	1
b.	The arithmetic mean of 150 observations was found out to be 80.5. At the time of calculation, one observation was wrongly recorded as 850 instead of 85. Calculate the correct mean.	2	1
c.	Explain factor reversal test of index number.	2	2
d.	Write a note on secular trend.	2	2
e.	Write down the formulae for regression coefficients.	2	3
f.	Name the types of correlation.	2	3
g.	Find the probability that a card selected at random from a deck is an ace or a queen.	2	4
h.	If n is 10 and p and q are 60% and 40% respectively. Find the mean and standard deviation of Poisson distribution.	2	4
i.	Explain Minimax and Maximin principle of decision making.	2	5
j.	Explain the expected opportunity loss principle in decision making.	2	5

SECTION B

2. **Attempt any *three* of the following:**   **3X10=30**

Qno.	Question	Marks	CO
a.	Define statistics. Explain the importance of statistics with reference to business and industry.	10	1
b.	What is index number? Discuss its utility.	10	2
c.	The information about sales turnover and advertising expenses given below:<table><tr><td></td><td>Mean</td><td>S.D</td></tr><tr><td>Advertisement Expenditure (Rs lacs)</td><td>10</td><td>3</td></tr><tr><td>Sales turnover (Rs crores)</td><td>90</td><td>12</td></tr><tr><td>Coefficient of correlation</td><td>0.8</td><td></td></tr></table>Find: i) Two regression equations. ii) Estimate likely sales turnover when the advertisement budget is Rs 15 lacs.	10	3
d.	According to study by a management consultant relating to new businesses facing difficulties, 60% of them have difficulties chiefly because they are undercapitalized and 40% have difficulties mainly due to poor management. It is also observed that in the first case chances of failure is 60% and in second case chances of failure 70%. Calculate the probability that a new business with difficulties that failed had its problems mainly due to under-capitalization.	10	4
e.	Describe the steps involved in the process of decision making.	10	5

SECTION C

3.   **Attempt any *one* part of the following:**   **1X10=10**

Qno.	Question	Marks	CO
a.	In a hotel a total of 500 bulbs were installed simultaneously and their failure over time was observed as detailed below. You are required to calculate the mean life of bulbs.	10	1

End of week	1	2	3	4	5	6	7
No of failures	12	40	108	242	346	428	500

Qno.	Question	Marks	CO
b.	What do you mean by central tendency? Describe the methods of measuring the central tendency	10	1

4.   **Attempt any *one* part of the following:**   **1X10=10**

Qno.	Question	Marks	CO
a.	Calculate the Fishers Ideal Index number from the following data:	10	2

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

Qno.	Question	Marks	CO
b.	What is time series? Explain the various components of time series. Also give the importance of time series	10	2

5.   **Attempt any *one* part of the following:**   **1X10=10**

Qno.	Question	Marks	CO
a.	Calculate Karl Pearson coefficient of correlation from the following data.	10	3

X	18	20	21	22	27	27	28	29	29	29
Y	23	37	29	28	28	31	35	30	36	33

Qno.	Question	Marks	CO
b.	What do you understand by regression? What role does it play in business and economic analysis?	10	3

6.   **Attempt any *one* part of the following:**   **1X10=10**

Qno.	Question	Marks	CO

a.	A machine fills coffee powder in pouches, with an average of 200 gm and a standard deviation of 4 gm. Assuming that the coffee weight is normally distributed. Find the probability that a coffee pouch selected at random will contain the following quantity of a coffee:
	   I) At least 200 gm.
	   II) Between 200 to 206 gm.
		10	4

b.	What is probability? Explain the calculation of probability under the classical approach.	10	4

7.　　**Attempt any *one* part of the following:**　　　　　　　　**1X10=10**

Q no.	Question	Marks	CO
a.	The number of crates of mangoes demanded and frequency of each level of demand in a period of 100 day are given below: 	No. of crates demanded	700	1060	1400	1750
No of days.	20	25	40	15 | It costs Rs 250 to buy a crate. The selling price of each crate, if it is sold the same day is Rs 400, but if it is not, the crate with the tale fruits has a salvage value of Rs 150. How many crates should a dealer order every day so that his profits may be maximized?	10	5
b.	What are decision tree? Explain the decision tress with the help of any example.	10	5