Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
MBA – SEMESTER 1 – EXAMINATION – SUMMER 2019

Subject Code: 4519207   **Date:22/05/2019**
Subject Name: Business Statistics
Time: 02:30 PM To 05:30 PM   **Total Marks: 70**
Instructions:
    1. **Attempt all questions.**
    2. **Make suitable assumptions wherever necessary.**
    3. **Figures to the right indicate full marks.**

		Marks
Q - 1	Explain the following terms/answer the following questions (Two marks each)	**14**
	(a) Quartile range	
	(b) Leptokurtic	
	(c) Null hypothesis	
	(d) Degree of freedom	
	(e) Continuous probability distribution	
	(f) What will be value of t table for one tail, significance level of 0.05 with degree of freedom of 9?	
	(g) Calculate coefficient of skewness for mean of 20, median of 22 and standard deviation of 5.8.	
Q.2 (a)	Explain in detail "Applications of statistics and limitations of statistics"	**07**
Q.2 (b)	Government of Gujarat tarrgeted to raise average funding of Rs. 44.5 Lacs from each participating company for the last vibrant Gujarat event. There are total 120 participating companies in vibrant Gujarat event. The followings are details of the fund raising from all participating company (Rs. in lacs per participating company) during vibrant Gujarat event.	**07**

Fund (in Rs. Lacs)	No of Co.	Fund (in Rs. Lacs)	No of Co.	Fund (in Rs. Lacs)	No of Co.
0 – 10	12	30-40	18	60-70	8
10 – 20	14	40-50	19	70-80	6
20 - 30	16	50-60	21	80-90	6

Can it be say that the Government of Gujarat was successful in achieving its target?

OR

| **Q.2 (b)** | Dr. Jack, Dr. Jill and Dr. Bell are working with small town of Nigeria. It is found that there is no other doctor in the town and 45% of population of town prefer Dr. Jill, 25% prefer Dr. Jack and the rest prefer Dr. Bell. Also it is noted that Dr. Jack advices 10% of his patient for taking pain killer, while Dr. Jill advices 12% and Dr. Bell advices 16% of their patients for taking pain killer. What is the probability that a randomly selected patient is found to be advices for pain killer, advices by (a) Dr. Jill (b) Dr. Jack or Dr. Jill? | **07** |

Q.3 (a) Explain in detail (a) One tail and two tail test (b) Type I and Type II Error   **07**

Q.3 (b) Considering the present scenario in the country post GST application, IFFCI **07** want to conduct the survey for perception of micro enterprises towards GST implementation. The revenue post GST is measured for micro enterprise and found to have an average revenue of Rs. 58000 with S. D. of Rs. 12500. IFFCI consider a random sample of a micro enterprise, what is the probability that the selected micro enterprise has revenue of (a) Less than Rs. 52800 (b) More than Rs. 56200?

OR

Q.3 (a) Construct the linear regression equation for impact of crude oil price on **07** Chinese GDP using the following data:

Chinese GDP (in Trillion USD)	Oil Price (In USD)	Chinese GDP (in Trillion USD)	Oil Price (In USD)
4.8	64.7	6	60.2
5.2	65.8	6.1	59.2
5.3	66.2	6.2	58.8
5.6	62.5	5.8	61.1
5.8	61.5	5.9	60.8

Q.3 (b) Explain in detail (a) Central Limit Theory (b) Binomial Distribution   **07**

Q.4 (a) Explain in detail (a) Multiple Regression (b) Factor Analysis   **07**

Q.4 (b) 20 scholar students from four different MBA colleges have appeared for a **07** psychological test for placement for five different companies and their ranks are as under:

	College A	College B	College C	College D
Company 1	1	2.5	2.5	4
Company 2	3	4	1	2
Company 3	3	3	3	1
Company 4	1	2	3	4
Company 5	4	3	2	1

Can it be claimed that the there is a significant difference in rank for four colleges with $\alpha = 0.01$?

OR

Q.4 (a) Explain in detail "Mann Whitney U Test with Small sample and large sample" **07**

Q.4 (b) Is the mode of transportation (Air, Rail, Road and Sea) used to ship goods **07** depends upon the type of industry (Glass manufacturing and Fertilizer industries? The following table represent the frequency counts for each industry for each mode of transportation.

	Air	Rail	Road	Sea
Glass manufacturing	32	12	18	36
Fertilizer	22	24	26	28

Q.5   CASE STUDY:

Rajkot Municipal Commissioner wants to develop certain understanding about the construction and development work on the outer ring road of the city. She has visited the site to understand the prices of the flats for the residencies developed there. According to a survey conducted by Property dealer association of Gujarat, Rajkot is one of the fast developing city and the migrant from the other part of the Saurashtra would continue demand for affordable housings in Rajkot. Buying affordable housing inside the core Rajkot city became dream for any middle income migrant. The builders at Rajkot outer ring road has developed two types of affordable residential project termed as "Budget residential projects" and "Common man residential projects".

In line with the dream project of our honorable prime minister for affordable housing for all, the Rajkot Municipal Commissioner also wants the same. She has hired an independent research agency and the agency has collected and presented certain data about the prices for two types of residential projects "Budget residential projects" and "Common man residential projects".

Prices of Budget residential projects (Rs. in Lacs)	Prices of Common man residential projects (Rs in Lacs)
18.5	20
21.9	20
20.2	20
22.8	25
26.8	25
21.9	15
22.3	20
16.4	20
19.8	25

(A) Calculate the average prices and variation in prices of both type of residential projects.   **7**

(B) Can it be concluded that the average prices of Budget residential projects are less than the average prices of Common man residential projects?   **7**

OR

(A) If the average prices of Common man residential projects are Rs. 19 lacs, can we say that the presented sample prices are significantly lower than the average prices at 5% significance level?   **7**

(B) What shall be conclusion of the above problem if the level of significant is changed to (a) 1% and (b) 10%?   **7**

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