Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MBA (AM) – SEMESTER – 2 - EXAMINATION – SUMMER - 2016

Subject Code: 4120503 **Date: 24-05-2016**

Subject Name: Business Statistics

Time: 10:30 am to 1:30 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** Explain various applications of statistics in Business **07**

(b) Define Following: **07**

1. Statistics
2. Census
3. Sample
4. Histograms
5. Pie Charts
6. Median
7. Mode

Q.2 **(a)** Construct a Stem and Leaf plot using 2 digits for the Stem. **07**

212	239	240	218	222	249	265	224
257	271	266	234	239	219	255	260
243	261	249	230	246	263	235	229
218	238	254	249	250	263	229	221
253	227	270	257	261	238	240	239
273	220	226	239	258	259	230	262
255	226						

(b) Compute P_{20}, P_{47}, P_{83}, Q_1, Q_2, and Q_3 for the following data. **07**

120	138	97	118	172	144
138	107	94	119	139	145
162	127	112	150	143	80
105	116	142	128	116	171

OR

(b) Explain common levels of Data measurement. **07**

Q.3 **(a)** Explain the difference between Coefficient of Correlation (r) and Coefficient of Determination (r^2). **07**

(b) Explain Chebyshev's Theorem in detail. **07**

OR

Q.3 **(a)** Use the values in the matrix to solve the equations given. **07**

	D	E	F
A	5	8	12
B	10	6	4
C	8	2	5

Determine:

1) P (A U D)

2) P (E U B)
3) P (D U E)
4) P (C U F)

07

(b) A research agency administers a demographic survey to 90 telemarketing companies to determine the size of their operations. When asked to report how many employees now work in their telemarketing operations, the companies gave responses ranging from 1 to 100. The agency's analyst organizes the figures into a frequency distribution.

Number of employees working in Telemarketing	**Number of Companies**
0 – under 20	32
20 – under – 40	16
40 – under – 60	13
60 – under – 80	10
80 – under – 100	19

a) Compute the Mean for this distribution.
b) Compute the Mode for this distribution.
c) Compute the Standard Variance for these data.
d) Compute the Standard Deviation for these data.

Q.4 **(a)** Explain the Structure of Probability. **07**

(b) Explain the Exponential Distribution. **07**

OR

Q.4 **(a)** Determine the Mean, the Variance, and the Standard Deviation of the following Discrete distribution. **07**

X	**P (X)**
0	0.103
1	0.118
2	0.246
3	0.229
4	0.138
5	0.094
6	0.071
7	0.001

07

(b) Determine the probabilities for the following Normal Distribution Problems.

a) $\mu = 48, \sigma = 12, \quad X < 20$
b) $\mu = 37, \sigma = 4.35, X > 35$

Q.5 **(a)** Machines A, B, and C all produce the same two parts, X and Y. Of all the parts produced machine A produces 60%, machine B produces 30%, and machine C produces 10%. In addition, **07**

40% of the parts made by machine A are part X.
50% of the parts made by machine B are part X.
70% of the parts made by machine C are part X.
A part produced by this company is randomly sampled and is determined to be an X part. With the knowledge that it is an X part, revise the probabilities that the part came from machine A, B or C.

(b) Values are Uniformly Distributed between 200 and 240. **07**

a) Determine the mean of this distribution.
b) Determine the Standard Deviation of this distribution.

c) Probability of (X > 230)

OR

14

Q.5 **(a)** Use the following data.

X	53	47	41	50	58	62	45	60
Y	5	5	7	4	10	12	3	11

Determine Following:

1) Simple regression line to predict Y from X.
2) SSE
3) Standard error of Estimate
4) Coefficient of Determination

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