

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

MBA – SEMESTER 01– • EXAMINATION – SUMMER-2018

Subject Code: 810007

Date: 04/05/2018

Subject Name: Quantitative Analysis (QA)

Time: 10:30AM 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) Find coefficient of variation for following groups and identify group with higher uniformity. (07)
Group1: 110,150,140,116,95,100,145,135
Group2: 120,150,95,75,140,160,145,120
- (b) Write a note on type I and type II errors. (07)

Q-2

- (a) During inspection in one well known school, the investor committee found that 60 percent failed in maths, 52 percent in English and 37 percent are failed in both the subjects. (07)
1. find the probability that the student is failed in maths when it is given that he is failed in English
2. find the probability that the student is failed in english when it is given that he is failed in maths
- (b) The city bank of durham has recently begun a new credit program. Customers meeting certain credit requirements can obtain a credit card accepted by participating area merchants that carries a discount follows normal distribution. Past numbers show that mean of the distribution is 3.75 and standard deviation is 1.68. What is the probability that, 1. Fewer than 3 will be rejected? 2. More than five will be rejected? (07)

OR

- (b) Write a note on random sampling methods (07)

Q-3

- (a) Mrunal Mankad has just purchased computer program that claims to pick stocks that will increase in price in the next week with an 85 percent accuracy rate. On how many stocks should Mrunal test this program in order to be 98 percent certain that the percentage of stocks that do in fact go up in the next week will be within plus or minus 0.05 of the sample proportion? (07)
- (b) The average commission charged by brokerage firms on a sale of stock is \$144 and the standard deviation is \$52. Joel has taken a random sample of 121 trades by his clients and determined they paid an average commission of \$151. At 0.10 Significance level can Joel conclude that client's commissions are higher than industry average? (07)

OR

Q-3

- (a) The data below are a random sample of 9 firms chosen from the “Digest of earnings Reports” in the Wall street journal on February 6, 1992: (07)
1. Find the mean change in earnings per share between 1991 and 1992.
 2. Find the standard deviation of the change and the standard error of mean.
 3. Were average earnings per share different in 1991 and 1992? Test at $\alpha=0.02$.

Firm	1	2	3	4	5	6	7	8	9
1991 earnings	1.38	1.26	3.64	3.50	2.47	3.21	1.05	1.98	2.72
1992 earnings	2.48	1.50	4.59	3.06	2.11	2.80	1.59	0.92	0.47

- (b) Calculate mean and mode for following data. Identify the better measure of central tendency. (07)

Class interval	frequency
10-20	15
20-30	20
30-40	18
40-50	22
50-60	15
60-70	15

Q-4

- (a) A Georgia firm manufacturing heavy equipment has collected the following production information about the company’s principal products. Calculate a weighted aggregates quantity index using quantities and prices from 1995 as the basis and the weights. (07)

Product	Quantity1993	Quantity1994	Quantity1995	Cost 1995
River barges	92	118	85	33
Rail road gondola cars	456	475	480	56
Off the road trucks	52	56	59	116

- (b) Write a note on multiple regression also explain term multicollinearity. (07)

OR

Q-4

- (a) For the following contingency table, calculate the observed and expected frequencies and chi square statistic. State and test the appropriate hypothesis at the 0.05 significance level. (07)

Occupation	Attitude towards social legislation		
Blue collar	19	16	37
White collar	15	22	46
professional	24	11	32

- (b) In a study a peter D. hart research associates for the NASDAQ stock market, it was determined that 20 % of all stock investors are retired people. In addition, 40 % of all U.S adults invests in mutual funds. Suppose a random sample of 25 stock investors is taken. What is the probability that 10 or more are retired people? Suppose a random sample of 20 U.S adults is taken. What is the probability that exactly eight adults invested in mutual fund? Fewer than six adults invested in mutual funds? None of the adults invested in mutual funds? Twelve or more adults invested in mutual funds? (07)

Q-5

- (a) A small independent physicians' practice has three doctors. Dr. Sarabia sees 41 % of the patients, dr. Tran sees 32% and dr. Jackson sees the rest. Dr. Sarabia requests blood tests on 5% of her patients; Dr. Tran requests blood tests on 8% of her patients, and Dr. Jackson requests blood tests on 6 % of her patients. An auditor randomly selects patients from the past week and discovers that the patient had a blood test as a result of the physician visit. Knowing this information, what is the probability that the patient saw Dr. Sarabia? For what percentage of all patients at this practice are blood tests requested? (07)
- (b) Write a note on techniques for decision making using uncertainty situation. (07)

OR

Q-5

- (a) State null and alternative hypothesis and determine whether there is any significant difference between treatments or not. (07)

1	2	3	4
23	26	24	24
31	35	32	33
27	29	26	27
21	28	27	22
18	25	27	20

- (b) Write a note on components of time series (07)
