

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MAM – SEMESTER – 2 • EXAMINATION – WINTER - 2016**

Subject Code: **4120503**Date: **19/11/2016**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) Define statistics and explain with illustrations, five uses of statistics in business **07**  
 (b) Calculate average daily wages from the following data: **07**

Daily wage (in Rs.)	60	80	100	120	160	180	200
No. of persons	5	8	12	22	10	7	6

- Q.2** (a) State briefly, giving reasons, and the kind of diagram you consider most appropriate for use with each of the following classes of statistical data. **07**  
 (i) Number of children per family in a large town.  
 (ii) Monthly rainfall for a period of three years.  
 (iii) Monthly output of steel for one year according to the principal grades of quality
- (b) Compute the S.D. of household size from the following frequency distribution of 500 households covered in a sample survey: **07**

Household size	1	2	3	4	5	6	7	8	9
No. of households	92	49	52	82	102	60	35	24	4

**OR**

- (b) The value of median for the following series is determined: **07**

Income(Rs.)	1200	1800	5000	2500	3000	1600	3500
No. of person	12	16	2	10	3	15	7

- Q.3** (a) Explain the following terms: **07**  
 1) Random experiment  
 2) Complementary event  
 3) Mutually exclusive events
- (b) If  $P(A) = 1/3$ ,  $P(B') = 1/4$  and  $P(A \cap B) = 1/6$ , find  $P(A \cup B)$ ,  $P(A' \cap B')$  and  $P(A'/B')$ . **07**

**OR**

- Q.3** (a) Define a discrete random variable, its mathematical expectation and properties of expected value. **07**
- (b) There are 2 white and 4 black balls in a box. A person takes 3 balls at random from the box. If he receives Rs. 10 for each white ball and receives Rs. 5 for each black ball, find the expected value of the amount received by him. **07**

**Q.4 (a)** Calculate the quartile deviation and its coefficient from the following data: **07**

Class interval	10-15	15-20	20-25	25-30	30-40	40-50	50-60	60-70
frequency	4	12	16	22	10	8	6	4

**(b)** What is correlation? Explain scatter diagram method. **07**

**OR**

**Q.4 (a)** The sum of squares of difference in ranks for two variables is 33, and the coefficient of rank correlation is 0.8. find the number of pairs of observation. **07**

**(b)** Find the equations of regression lines from the following data and also estimate y for x =1 **07**

X:	3	2	-1	6	4	-2	5	7
Y:	5	13	12	-1	2	20	0	-3

**Q.5 (a)** Write a note on: Non Probability Sampling Methods. **07**

**(b)** The average height of a group of soldiers is 68.22” and the variance of height is 10.89. out of 1000 soldiers how many soldiers do you expect to be at least 6 feet tall ! **07**

**OR**

**Q.5 (a)** State the properties and uses of normal distribution. **07**

**(b)** The probability distribution of demand of a commodity is given below: **07**

Demand x:	5	6	7	8	9	10
Probability p(x)	0.05	0.1	0.3	0.4	0.1.	0.05

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