

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- VIth SEMESTER-EXAMINATION – MAY- 2012****Subject code: 162501****Date: 09/05/2012****Subject Name: Statistical methods and Quality control****Time: 10:30 am – 01:00 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 methods of Data Collection and their representation with suitable example **07**
 (b) Explain various measures of central tendencies using a case problem **07**
- Q.2** (a) Explain Baye's theorem with a case problem. **07**
 (b) Explain cases of method of testing of hypothesis.. **07**
- OR**
- (b) Explain Analysis of variance(ANOVA). **07**
- Q.3** (a) Explain various methods of vendor rating. **07**
 (b) Sketch OC curve for the following scheme: A single item is taken at random from the lot and inspected. if it is defective, the lot is rejected otherwise lot is accepted. **07**
- OR**
- Q.3** (a) Explain sampling plans v/s control charts for SQC. **07**
 (b) A single sampling plan uses a sample size of 15, and an acceptance number of 1. Compute the probability of acceptance of a lot of 50 articles 2% defective. Use hyper geometric probabilities. **07**
- Q.4** (a) Explain p and np charts with neat sketch. **07**
 (b) A large number of samples of 200 items each taken from a process that has a percentage nonconforming of 10%. What is the expected average number of nonconforming units per sample? Also find the 3 sigma control limits for np chart. **07**
- OR**
- Q.4** (a) Explain properties of binomial and poisson's distribution. **07**
Q.4 (b) Explain conditional probability with suitable example. **07**
- Q.5** (a) Explain student's t-distribution with suitable example. **07**
 (b) What do you mean by raw moment and central moment? Explain their relationship and their use in detail **07**
- OR**
- Q.5** (a) Describe F-Distribution with suitable example. **07**
 (b) Explain variance, skewness and kurtosis with suitable example. **07**
