Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. - SEMESTER – VII • EXAMINATION – WINTER 2012

Subject code: 171504 **Date: 28/12/2012**

Subject Name: Industrial statistics and Quality Management

Time: 10.30 am - 01.00 pm **Total Marks: 70**

Instructions:

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

Q.1 **(a)** Define statistics. Explain the role of statistics in quality management. **07**

(b) "Dispersion is as important as the central tendency" Explain. List out the measures of dispersion and also explain the main reasons of studying them with examples. **07**

Q.2 **(a)** The profits earned by 100 top companies in India during 2010 are given below: **07**

Find (a)the value of mean, median and mode the frequency distribution and confirm whether the distribution is very nearly symmetrical or not? (b) Calculate Q1 and interpret the results.

Profits(in billions)	5	10	15	20	25	30	35	40
No. of companies	2	7	14	27	48	64	84	75

(b) Distinguish between : **07**

(a) A bar chart & a histogram, (b) a frequency polygon & a frequency curve.

OR

(b) What are the criteria's of a good measure of central tendency? Compare the mean, median and mode in the light of these criteria. **07**

Q.3 **(a)** What is Skewness and kurtosis? State its applications. **07**

(b) In M/S PNG (p) limited, MORBI the manufactures of vitrified tiles, probability that the tiles will be defective is 1/12. If tiles are manufactured in the lot of 1000, find the Probability that (a) AT LEAST TWO tiles will be defective, (b) Exactly THREE tiles will not be defective, (c)None will be defective? **07**

OR

Q.3 **(a)** " Quality differ person to person, country to country"- Criticize the statement. **07**

(b) Write note: Quality circle-its importance and hurdles to implement. **07**

Q.4 **(a)** Discuss the linkage between quality and productivity with suitable examples. **07**

(b) What is the application of control charts in any organization? The no. of defectives of vitrified tiles in M/S deco limited, MORBI is given below. Draw the control chart(assume the constant to calculate control limits): **07**

Lot no.	22	56	67	78	112	234	450	467	501
No. of	4	3	-	5	1	6	2	3	1

defective s									

OR

Q.4 (a) Write short note: TQM and ISO 9000: the two sides of coin. **07**

Q.4 (b) What are the important criteria for selection of samplings plan for any industry? Explain. **07**

Q.5 (a) Write short note: Importance of O.C. curve with example. **07**

(b) What is the process capability? Discuss its importance with its various indexes (cp and cpk) **07**

OR

Q.5 (a) Differentiate between single sampling plan and double sampling plan. **07**

(b) Write short note: Seven tools of SQC for quality management in industries. **07**

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