COURSE CODE: 14M1WBT334

MAX. MARKS: 15

COURSE NAME: QC Analysis and Management

COURSE CREDITS: 03

MAX. TIME: 1 HR

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q1. A quality control inspector at the Cocoa Fizz soft drink company has taken 15 samples with 4 observations each of the volume of bottles filled. The data and the computed sample mean $\bar{x}$ ounces and sample range R ounces are shown in the table. For given $n = 4, A_2 = 0.73, D_3 = 0, D_4 = 2.28$. Use this information to develop control limits of three standard deviations for the bottling operation.

Sample	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
$\bar{x}$ ounces	15.9	16	15.9	15.9	16	16	16	15.9	16	15.8	16	16	15.8	15.9	16.1
R ounces	0.2	0.3	0.2	0.5	0.5	0.2	0.5	0.2	0.2	0.3	0.3	0.4	0.2	0.4	0.3

Construct control chart *for mean and for range* and check whether the process is under control or not in terms of centrality and comment on the state of the control. [4]

Q2. Explain quality control techniques for routine analysis of HPLC in laboratory. [3]

Q3. Explain basic aim and benefits of ISO certification. [2]

[2 x3=6]

Q4. Answer the following questions.

a) What is cost of poor quality?
b) Explain role of inspection in quality control.
c) What are the dimensions of quality?