CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR
OF COMMERCE**

BCOM 366: STATISTICAL QUALITY CONTROL

STREAMS: BCOM   **TIME: 2 HOURS**
DAY/DATE: FRIDAY 09/7/2021   **8.30 A.M. – 10.30 A.M.**

INSTRUCTIONS: Answer question ONE and any other TWO

QUESTION ONE

(a)   "In addition to being critical element in operations, quality has other implications".

Discuss the statement explaining why quality is important to a firm.   [8 marks]

(b)   Explain the role of inspection in statistical quality control   [5 marks]

(c)   20 television sets were examined for quality control. The number of defects for each

television set are recorded below:

2, 4, 3, 1, 1, 2, 5, 3, 6, 7, 3, 1, 4, 2, 1, 3, 4, 6, 1, 1

(i)   Prepare c-chart   [8 marks]

(ii)   What conclusions can you draw from it   [4 marks]

(iii)   Advise the company accordingly   [2 marks]

(d)   Discuss different ways of controlling quality of a product   [3 marks]

QUESTION TWO

(a)   Discuss benefits and limitations of statistical quality control   [10 marks]

(b)   The following data refers to visual defects found at inspection of the first 10 sample of   size

100

Sample No.	1	2	3	4	5	6	7	8	9	10	Total
No. of detectives	2	1	1	3	2	3	4	2	2	0	20

Required:

(i)   Use the above information to obtain upper and lower control limits   [4 marks]

(ii) Represent the first ten sample results in the chart you prepare to show the central line and control limits.   [6 marks]

QUESTION THREE

(a)   Discuss three types of acceptance sampling plans highlighting their strengths [9 marks]

(b)   During an examination of equal length of cloth, the following number of defects are observed:

2, 3, 4, 0, 5, 6, 7, 4, 3, 2

Required:

Draw a control chart for the number of defects and comment whether the process is   under control or not   [11 marks]

QUESTION FOUR

(a)   (i)   Discuss four factors to consider when determining a sampling plan   [4 marks]

(ii) Briefly discuss basic procedures to follow in establishing quality control programme in a manufacturing firm   [4 marks]

(d)   Given the following data: N=1000 $n_1 = 50$ $C_1 = 1$ $n_2 = 25$ $C_2 = 5$

Required:

Draw an OC (Operating characteristic) and comment on the graph   [8 marks]