

**MAIN UNIVERSITY EXAMINATIONS 2020/2021**  
**FIRST YEAR FIRST SEMESTER BSC IN COMMUNICATION, JOURNALISM AND**  
**MEDIA STUDIES**  
**STA 117 - QUANTITATIVE SKILLS**

**Attempt Question 1 and any other TWO Questions**

**QUESTION 1 –COMPULSORY (30MKS)**

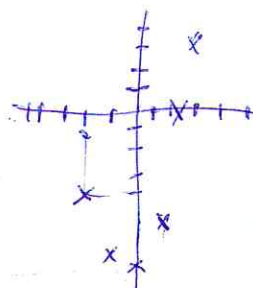
- (a) Distinguish between finite and infinite sets. (2mks)
- (b) Given the sets,  $A = \{\text{Positive integers less than } 40\}$  and  $B = \{\text{All positive odd numbers multiples of } 3 \text{ less than } 50\}$ : List the elements of the following sets:-
- i)  $A-B$  (2mks)
- ii)  $B-A$  (2mks)
- (c) Given the following data, prepare a frequency distribution table using 5 classes. (5mks)  
~~20, 31, 23, 53, 21, 39, 26, 35, 50, 34, 44, 41, 20, 48, 67~~
- (d) Find the mean of the dataset in (c) above. (3mks)
- (e) If A and B are dependent events, find  $P(A \cup B)$  (2mks)
- (f) Use the graphical method to solve for x in:  $2x^2 + x - 10 = 0$  (5mks)
- (g) State any five characteristics of a good graph (5mks)
- (h) The mean of ten values is 70 and the nine of the values are 48, 72, 79, 56, 45, 96, 88, 75 and 66. Find the tenth value (2mks)
- (i) Use a Venn diagram to represent  $(A \cup B) \cap C$  (2mks)

**QUESTION TWO (20MKS)**

Use the data below to answer the questions that follow:

Marks (%)	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
frequency	2	4	3	5	15	7	4	6	1

- (a) Construct a cumulative frequency distribution table (4mks)
- (b) Calculate the mean (4mks)
- (c) Find the median (4mks)
- (d) Find the lower and upper quartiles (4mks)
- (e) Calculate the Standard deviation (4mks)



**QUESTION THREE (20MKS)**

(i) Solve for x in:

(a)  $2x+3=11$  (2mks)

(b)  $2x^2+8=40$  (3mks)

(c)  $3x^2+24-2=97$  (3mks)

(ii) For each of the equations above, draw a graph representing them and prove the solutions for x gotten thereof, by use of the graphs (12mks)

**QUESTION FOUR (20MKS)**

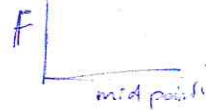
The table below show the distance in kilometers that first year students cover from their homes to Rongo University. Use it to answer the questions that follow.

Distance in kms	100-119	120-139	140-159	160-179	180-199	200-219	220-239	240-259	260-279
No. of students	10	4	6	15	7	10	11	8	1

i. Identify the class size used in grouping the data (1mk)

ii. Develop a comprehensive frequency distribution table, including the mid-points, class boundaries and cumulative frequencies. (8mks)

iii. From the table above, develop the frequency distribution curve, the bar graph and the histogram (11mks)



**QUESTION FIVE (20MKS)**

The steel production in a company is as presented in the table below.

Year	1990	1991	1992	1993	1994	1995	1996	1997
Production	352	366	361	366	400	435	420	419

i. Compute moving averages of order 3. (7mks)

ii. Represent the information on a graph. (9mks)

iii. Comment on the trend. (4mks)