S.3 &S.4 STATISTICS

UNGROUPED DATA

1. The data below shows the marks obtained by 20 students of S.3 in a mathematics test marked out of 20;

   11,10,14,15,18,19,20,16,18,17,12,13,16,15,14,17,18,17,16,19

   a) Represent the above data on a frequency distribution table
   b) Use your table in (a) above to find the;
      (i) Mean,
      (ii) Mode,
      (iii) Median, of the distribution
2. The following were the times in minutes taken by students of S.2 to do an exercise on logarithms;

   2,1,3,4,5,6,7,8,9,10,3,4,6,7,6,8,9,6,3,2

   Form a frequency distribution table for the ungrouped data and use it to find the;

   (i) Mean time
   (ii) Modal time
   (iii) Median time
3. The table below shows the marks obtained by 30 students in a test marked out of 10;

Score	0	1	2	3	4	5	6	7	8	9	10
frequency	2	2	3	2	3	4	5	2	1	3	3

   a) Calculate the mean using a working mean of 5
   b) Find the;
      (i) Mode mark
      (ii) Median mark
4. The following are the marks obtained by 21 students in a mathematics test marked out of 20;

   7,8,6,8,9,6,10,4,5,6,4,4,6,8,7,10,6,8,11,12,8

   a) Form a frequency distribution table for the above data
   b) Use your table to find the;
      (i) Mean mark using an assumed mean of 7
      (ii) Median mark
      (iii) Modal mark
5. The table below shows the heights in centimeters of seedlings in a nursery bed;

Height (cm)	10	11	12	13	14	15	16	17	18	19	20
Number of seedlings	1	2	1	4	4	2	1	2	1	1	2

   a) Calculate the mean height using an assumed mean of 16
   b) Find the;
   (i) Median
   (ii) Mode

6. A group of 20 people played a game. The table below shows the frequency distribution of their scores;

Scores	1	2	4	X
Number of people	2	5	7	6

   a) Given that the mean score is 5, find the value of x
   b) Find the median of the distribution

7. The table below shows the number of goals scored by Liverpool Football Club in a series of football matches

Number of goals	1	2	3	4	5
Number of matches	3	4	1	y	1

   a) If the mean score is 3, find y
   b) Determine the median of the distribution

8. 3,9,8,4,4,10, X,3,10

   For the set of values above;

   a) Find X if the mode of the distribution is 3
   b) Determine the;
      (i) Median,
      (ii) Mean, of the distribution

9. A family in Teso College Aloet East Wing village spends its income on the following items;

Item	Food	rent	transport	others
Amount (shs.)	35,000	12,000	10,000	15,000

   Represent the above information in a pie-chart

10. In a home work marked out of 20, a group of pupils obtained the following marks;

    15,20,18,17,8,18,16,20,18,17,12,9

    Find the mean, median and modal marks

11. There are 8 men and 1 woman in a boat. The average mass of the 9 people is 79kg. without a woman, the average mass of the men is 81.5kg. what is the mass of the woman?
12. The table below shows the ages of pupils in a certain class

Age (years)	11	12	8
Number of pupils	A	10	A

    If the mean age of the pupils is 10, find the value of a

13. The mean of four numbers is 25, their median is 23. If the largest number exceeds the smallest number by 30 and the largest number is one and half times the second largest number, determine the four numbers.
14. The following are the ages of pupils in Aloet Primary School;

    7,8,6,8,9,6,10,4,5,6,4,4,6,8,7,10, h, 8,11,12,8

a) If the modal age is 6 and 8, find the value of h
b) Represent the ungrouped data on a frequency distribution table and use it to find;
(i) Mean using a working mean of 7
(ii) Median age

15. The table below shows the yields of beans (in sacks) from three different fields (A, B, and C) during the COVID-19 season

Field	Number of sacks
A	100
B	125
C	75

Display the above data in a pie-chart

16. The table below shows the percentage number of students who attend various courses in a Commercial College;

Course	Catering	Tourism	Marketing	Accounting
Number of students (%)	m	15	34	40

a) If the number of students studying Accounting is 120, determine the;
(i) Student population of the college
(ii) Number of students who study Catering
b) Represent the above information in a pie-chart

17. The percentage number of fruits sold in the newly inaugurated main market in Soroti city is as shown in the table below

Fruit	Bananas	Mangos	Lemons	Apples
Percentage number	45	25	y	36

(i) If the number of lemons sold during Easter day was 560, determine the number of bananas sold that day
(ii) Draw a pie-chart to represent the above data

18. The mean of four numbers is 34.5, their median is also 34.5. if the largest number exceeds the smallest number by 3 and the difference between the second largest number and the second smallest number is 1, determine the four numbers.
19. The Headteacher asked the farm manager the amount of milk (in liters) obtained per day from each cow in the school farm. The result was organized in the table below;

Amount of milk (liters)	Cumulative frequency
8	14
9	22
10	50
11	65
12	85

Find the;

(i) Number of lactating cows in the school farm
(ii) Mean,
(iii) Mode,

(iv) Median, of the distribution

20. The mean score of; 3,5,2,7, and X is 4, find the;
    (i) Value of X
    (ii) Probability that a score selected at random from the group is above the mean score.
21. The following are the percentage marks obtained by ten pupils in a mathematics test;

    12,3,39,61,40,10,28,40,15,52

    Find the;

    (i) Mean mark
    (ii) Probability that a pupil selected at random from this group scored a mark below the mean mark
22. The table below shows the temperatures of 42 different objects in the physics laboratory;

Temperature (℃)	-4	-3	-2	-1	0	1	2	3	4
Number of objects	1	8	2	3	9	5	5	7	2

    Calculate the;

    (i) Mean,
    (ii) Median,
    (iii) Modal, temperature of the objects

GROUPED DATA

23. The table below shows the percentage marks obtained by 40 students of S.3A in a mathematics test;

Marks (%)	Number of students
20-29	4
30-39	6
40-49	2
50-59	5
60-69	7
70-79	8
80-89	5
90-99	3

    a) State the;
        (i) Class with
        (ii) Modal class
        (iii) Median class
    b) Calculate the;
        (i) Mean mark
        (ii) Median mark
        (iii) Modal mark
24. In a survey, the masses of 50 apples were noted and recorded in the following table with each value given to the nearest gram;

86	92	116	107	93
105	108	118	98	96
100	99	93	95	101
104	92	101	101	113
103	114	107	102	103
113	97	109	92	85
108	118	116	111	110
101	99	117	96	88
102	92	87	105	105
106	106	101	100	100

a) Draw a frequency distribution table using equal class intervals of with 5g, taking the first interval as 85-89

b) Use your table in (a) above to find the;

(i) Mean

(ii) Median

(iii) Mode

25. The table below shows the heights in meters of pine trees in the school forest;

Class	Frequency
1.0-1.9	3
2.0-2.9	7
3.0-3.9	8
4.0-4.9	2
5.0-5.9	15
6.0-6.9	5
7.0-7.9	6
8.0-8.9	4

a) State the;

(i) Class width

(ii) Modal class

(iii) Median class

b) Calculate the mean using working mean of 4.45

c) Find the;

(i) Median height

(ii) Modal height

26. The table below shows the marks obtained by a group of S.5 students in a mathematics test marked out of 50;

11	16	20	26	29
17	21	33	28	32
35	14	37	40	41
34	36	38	33	24
42	41	18	43	44
45	31	38	32	35
28	49	39	29	36
46	37	27	47	23

a) Draw a frequency distribution table for the marks, starting with 10-14 class group

b) State the;
(i) Class interval
(ii) Modal class
(iii) Median class

c) Calculate the;
(i) Mean mark using an assumed mean of 32
(ii) Median mark
(iii) Modal mark

27. The table below shows the ages of students admitted in S.1 in Lango College in 1989;

Ages (years)	Cumulative frequency
13.0-13.4	3
13.5-13.9	13
14.0-14.4	22
14.5-14.9	29
15.0-15.4	42
15.5-15.9	47
16.0-16.4	49
16.5-16.9	50

a) State the;
(i) Class width
(ii) Modal class
(iii) Median class
(iv) Number of students who joined S.1 in Lango College in 1989

b) Calculate the;
(i) Mean using a working mean of 15.2 years
(ii) Median age
(iii) Modal age

28. The table below shows the masses of 35 newly born babies in Soroti main hospital;

Mass (kg)	X	f	$d = X - A$	fd
2.0-2.4	2.2	5	-1.5	-7.5
2.5-2.9				-3.0
3.0-3.4		7		
3.5-3.9		9		0
4.0-4.4				3.0
4.5-4.9				
5.0-5.4		2		3.0
		$\sum f =$		$\sum fd =$

a) Copy and complete the table above

b) State the;
(i) Class interval
(ii) Modal class
(iii) Median class

c) Calculate the;
(i) Mean using the assumed mean method
(ii) Median

(iii) Mode

GRAPHICAL REPRESENTATION OF GROUPED DATA

29. The table below shows the marks obtained by 60 students in an English in Holly Angels College, Soroti;

Marks	Number of students
20-24	10
25-29	6
30-34	10
35-39	15
40-44	5
45-49	3
50-54	4
55-59	3
60-64	4

a) Draw a histogram for the above data and use it to estimate the modal mark
b) Calculate the mean and median of the grouped data

30. The data below shows the mock results obtained by 50 candidates of S.4

25	30	29	60	72	59	40	40	62	70
40	39	62	65	40	59	39	43	80	21
58	29	19	25	30	32	56	59	40	55
69	90	81	50	31	45	60	20	51	49
31	30	56	58	50	50	50	60	40	70

a) Construct a grouped frequency distribution table having class intervals of 10 marks beginning with 15-24 class group
b) Use your table in (a) above to find the;
(i) Mean,
(ii) Median, of the grouped data
c) Represent the above mock results on a histogram and use it to estimate the mode.

31. The table shows the weights of S.4 students of St. Mary's College Aboke;

Weight (kg)	Cumulative frequency
30-34	2
35-39	7
40-44	12
45-49	21
50-54	28
55-59	34
60-64	38
65-69	40

a) Draw a cumulative frequency curve (ogive) and use it to estimate the median weight of the students
b) Calculate the actual mean weight of the students using 57 as the working mean

32. The table below shows the marks scored by 90 students in a test marked out of 50;

Marks	Frequency
15-19	1
20-24	13
25-29	29
30-34	25
35-39	19
40-44	3

a) Using $A = 27$, calculate the mean mark of the test
b) Represent the above data on an ogive and use it to estimate median mark

33. The marks obtained by a class of 40 pupils in a test are given below

50	71	40	48	61	70	30	62
44	63	60	51	55	25	32	65
54	62	65	50	45	40	25	45
48	45	30	38	30	28	24	48
30	48	28	35	50	48	50	60

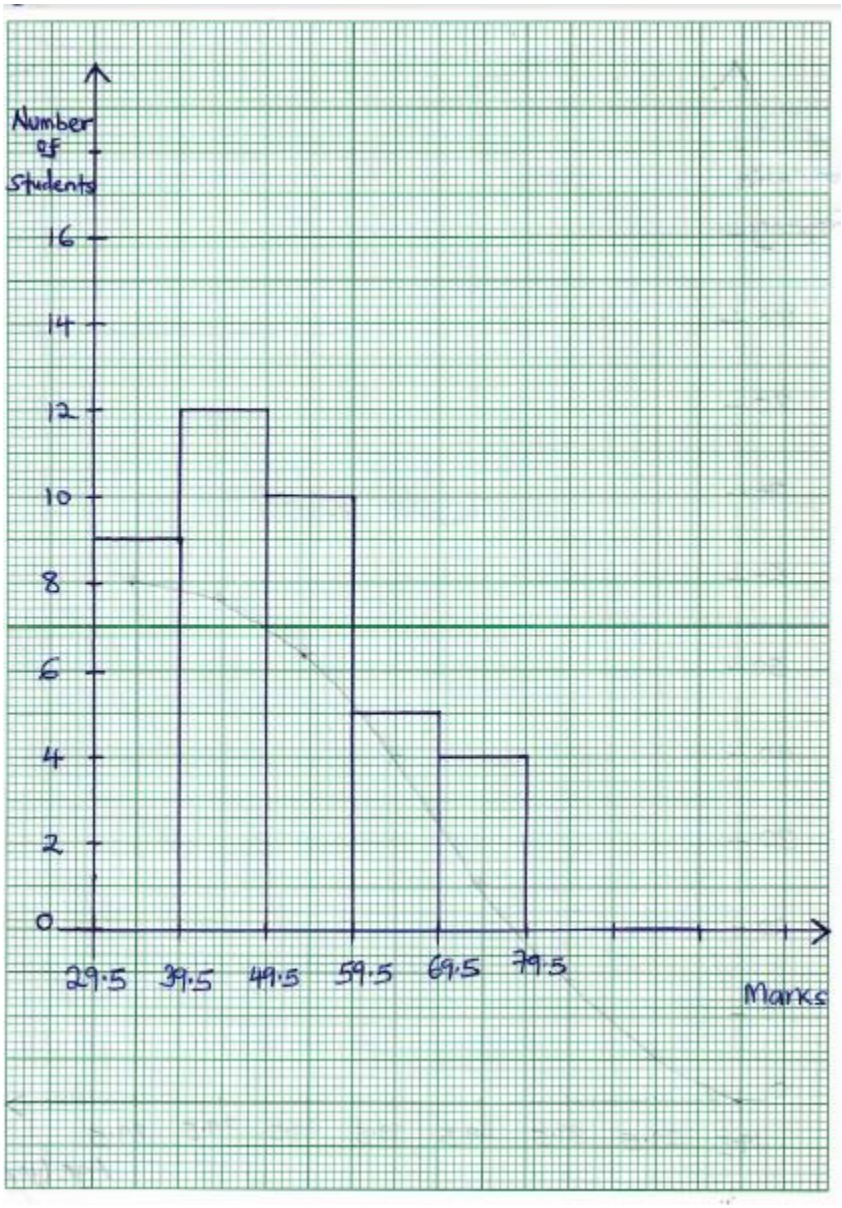
a) Using class intervals of 5 marks, construct a frequency distribution table, starting with the 20-24 class group
b) Represent this information on a histogram and use it to estimate the mode
c) Estimate the mean mark using a working mean of 47

34. The Chairperson of class teachers of Teso College Aloet tested sixty 13-year old S.1 students to find out their resting pulse-rates and obtained the following figures for the number of beats per minute;

70	92	67	74	79	56	72	58	78	76
82	76	66	74	75	65	71	86	74	67
80	84	86	63	81	62	84	79	77	73
70	91	61	80	69	70	74	73	72	76
72	75	53	68	72	72	56	73	57	65
69	68	70	89	62	80	70	63	67	64

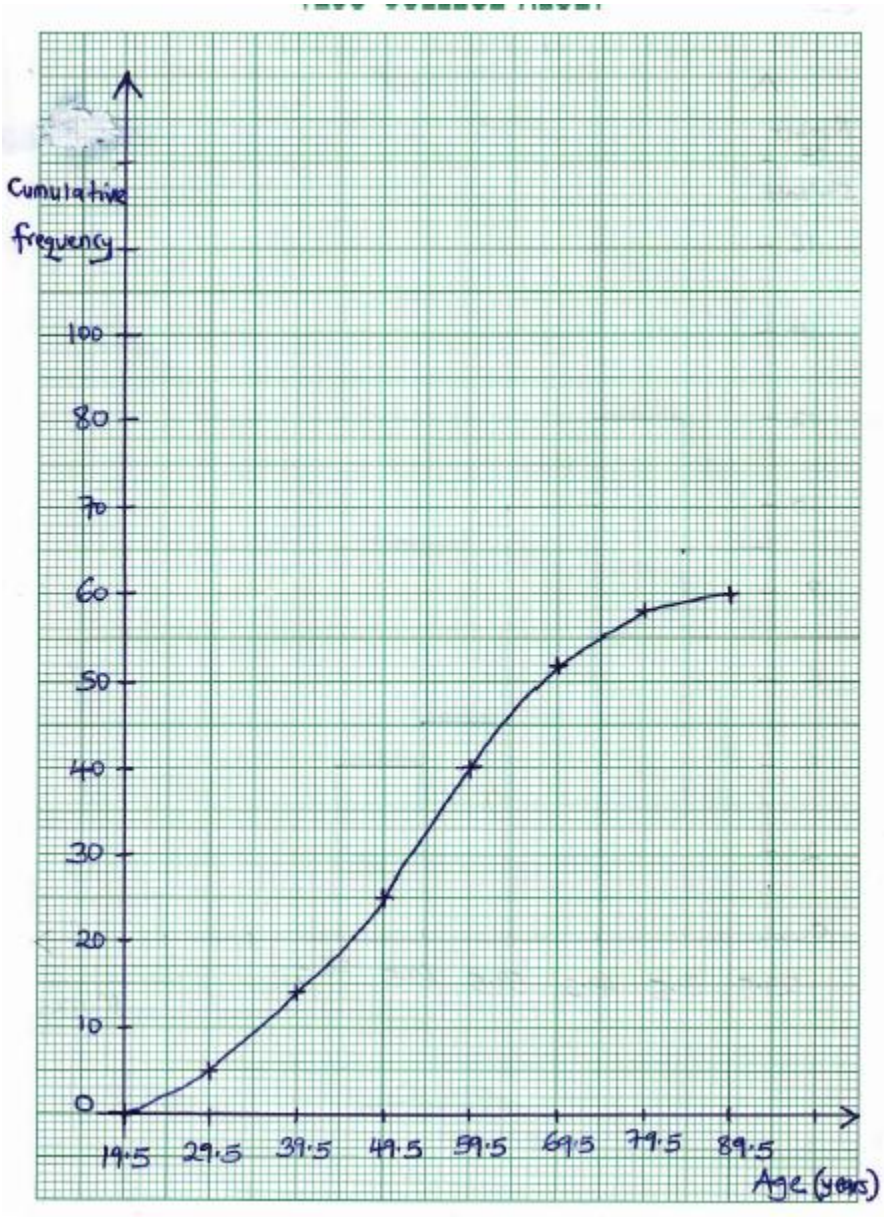
a) By re-arranging the data in classes of 50-54, 55-59……. etc., make a frequency distribution table
b) Use your grouped data to determine the median modal pulse rates
c) Draw a cumulative frequency curve for the data and use it to estimate the median pulse rate

35. The histogram given below shows the ranges of marks obtained by S.4 students in a test;



a) Determine the number of students who sat for the test
b) Represent the above data on a frequency distribution table and hence use it to calculate the mean mark
c) State the;
   (i) Modal class
   (ii) Median class
   (iii) Class width

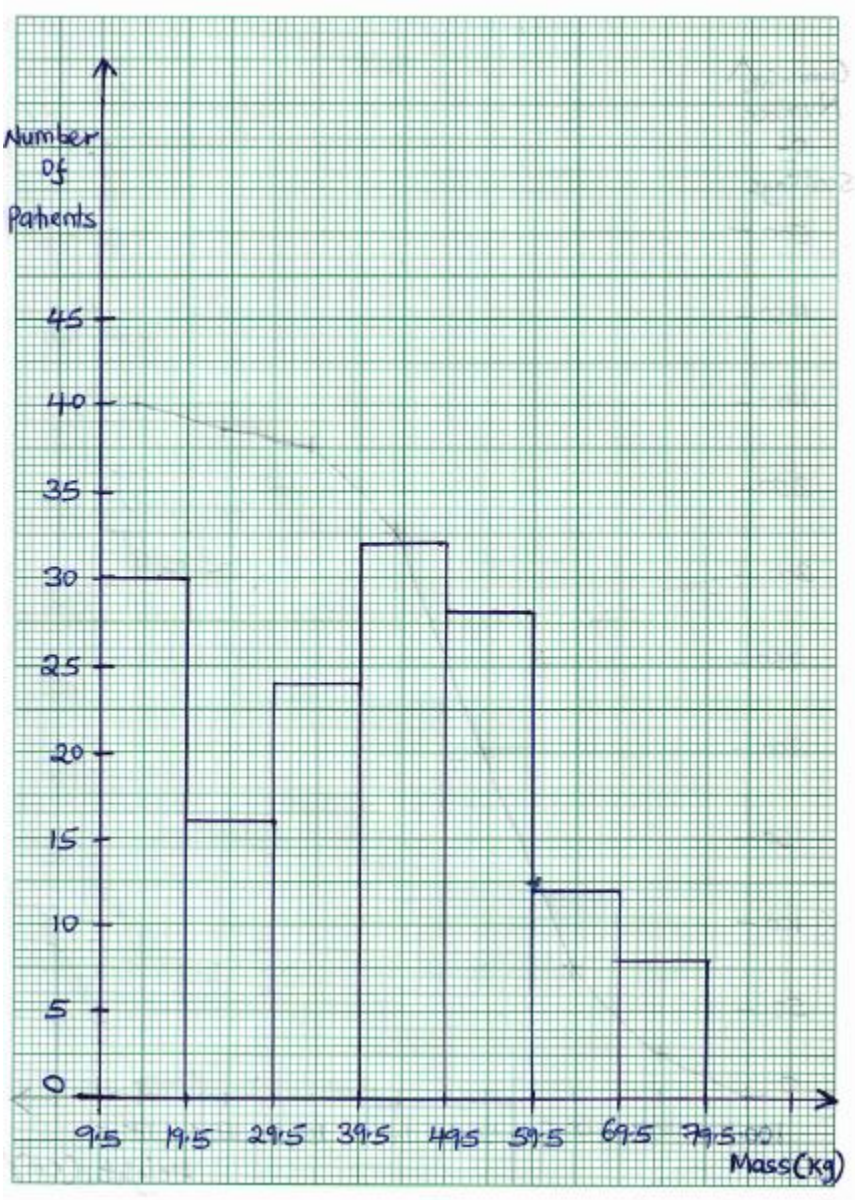
36. The graph below shows the number of people by age who turned up for the National Identity Card Registration exercise at Asinge Cell- Madera in Soroti Municipality. Study it carefully and use it to answer questions that follow;



a) State the;
   (i) Modal class
   (ii) Median class
   (iii) Class interval
   (iv) Total number of people who turned up for the registration exercise

b) Calculate the;
   (i) Mean age using a working mean of 64.5 years
   (ii) Modal age of the people who turned up for the registration exercise

37. The graph below shows the masses of 150 patients who visited Mbale regional referral hospital;



a) State the;
   (i) Modal class
   (ii) Median class
   (iii) Class width

b) Calculate the mean mass of the patients using an assumed mean of 24.5kg

c) Find the modal mass of the patients

38. The cumulative frequency curve below shows the heights of seedlings in a nursery bed prepared by students of S.3;



a) Represent the above data on a frequency distribution table and use it to find the;
   (i) Mean,
   (ii) Median,
   (iii) Modal, height of the seedlings

b) State the;
   (i) Median class
   (ii) Modal class
   (iii) Class width

"The only way to pass mathematics is through practice under the guidance of a lovely professional teacher."