

NAME..... STREAM.....

**MATHEMATICS DEPARTMENT**

**S.4 MATHEMATICS SUMMERTIVE ASSESSMENT**

**DURATION: 2 HOURS**

**INSTRUCTIONS:**

- Attempt all questions
- All necessary calculations and illustration must be shown clearly.
- Unnecessary crossing of work and unclear work will lead to loss of marks.

EXAMINER'S USE ONLY	
NUMBER	SCORES
1	
2	
3	
4	

1. In 2020, most hospitals in Uganda were filled with patients covid-19. At Mulago hospital, the story was not different. The government embarked on reducing the spread of covid-19 through measures like lock down, social distancing and improving on healthy facilities which indeed helped in reducing the numbers of covid-19 victims.

The director of Mulago hospital tasked the laboratory technician to provide information on the positive cases of covid-19 and the table below were the findings for 8 consecutive weeks.

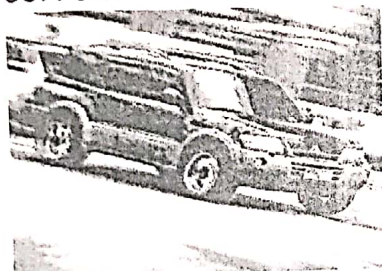
57	12	71	83	65	25	51	33
17	54	19	73	45	70	62	51
23	44	43	20	40	72	36	43
64	25	59	60	42	37	41	65
57	57	45	70	69	78	59	35

### TASK

As a student of statistics, organize the data presented in the table above in a report form clearly indicating the average, fall and rise of covid 19. ( start with a class of 10-19)

2. Mr. Musoke a traffic officer was trying to explain to taxi drivers at Kibuli Dipo about safety driving and added that resistance to motion of a car is directly proportional to the square of the speed of the car. If the resistance is 40,000 newton at a speed of 20m/s. unfortunately the police officer is not good at mathematics and has failed to come up with the right calculations.

### SUPPORT



### TASK

As a student of mathematics help officer Musoke to explain to the drivers the mathematical connection between resistance and speed, also show the resistance at a speed of 25m/s.

3. Katalemwa Muhammad has been given a job at Afaayo technologies Uganda. The human resource manager of the company has given him a document with the following.
- An employee earns UGX. 890,000 per month and his allowances are:
- Insurance and relief UGX.222,000 per annum
  - Water and electricity UGX.21000 per month
  - Medical UGX. 318,000 per annum
  - Housing allowances UGX. 55,000 per month
  - Transport allowance UGX. 42,000 per month
  - Family allowance for 3 children only. For children age bracket 0 to 10 years, UGX.14000 per child. Between 10 to 18 years UGX. 12,000 per child and over 18 years, UGX.9500 per child

A table below shows the tax structure on taxable income

Income (UGX.) PER MONTH	TAX RATES (%)
1-40,000	8.0
40,001-100,000	16.5
100,001-200,000	24.0
200,001-350,000	32.0
350,001-510,000	43.0
Above 510,000	48.5

Katalemwa is interested in knowing his take home ( net income) but has failed to interpret the document.

**TASK:** Help Katalemwa in the interpretation of the document and show his take home.

4. Four members of a certain Sacco namely; Kajumbi, Katumba, Matovu and Sempa bought items as shown below:
- Kajumbi bought 1 bag of posho, 5 bags of millet, 2 bags of sorghum and 2 bags of rice
  - Katumba bought 5 bags of posho, 3 bags of millet and 4 bags of millet *Sorghum*
  - Matovu bought 4 bags of posho and 8 bags of rice
  - Sempa bought 3 bags of rice, 4 bags of sorghum, 3 bags of millet and 2 bags of posho.

The cost per bag of items bought was; Rice at Ugx.200,000, sorghum at Ugx.60,000 , millet at Ugx.75,000 and posho at Ugx.100,000

**TASK**

- (a) Assist the Sacco members to summarize the above information in matrix form for the
- Items purchased
  - Cost expense
- (b) Using your knowledge of matrix multiplication help the members to know how each shall spend on their purchases.

END