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MATHEMATICS

PAPER 1

AUGUST 2019

2 HRS

URINGI SECONDARY SCHOOL

Uganda certificate of education

END OF TERM II 2019

MATHEMATICS.3

Paper 1

INSTRUCTIONS

- Answer **all** questions in section **A** and any **three** in section **B**
- Silent non-programmable calculator may be used
- Any additional question(s) answered will not be marked.

SECTION A (24 MARKS)

Answer **all** questions

1. Factorise $x^2 - y^2$ and hence find $5.5^2 - 4.5^2$ (04 marks)
2. It is that $n * m = m^2 - n$ and $(4 * 2) * x = 9$. Determine the value(s) of x (04 marks)
3. A farm has chicken and cows only. One day during counting, their total heads were 195 and their total legs were 570. Obtain the number of chicken and cows in the farm. (04 marks)
4. Given that $\begin{bmatrix} a & 3 \\ 2 & 1 \end{bmatrix} + \begin{bmatrix} 2 & 4 \\ b & 5 \end{bmatrix} = \begin{bmatrix} -1 & c \\ 3 & 6 \end{bmatrix}$. Determine the values of a , b and c (4 marks)
5. The mean age of 5 boys is 20 and that of 15 boys is 30. Find the mean age of all the boys. (4 marks)
6. Two dice are tossed, what is the probability of getting a two and an odd number showing up. (4 marks)

SECTION (36 MARKS)

Answer any **three** questions

All questions carry equal marks

7. (a) Use matrix method to solve the following pairs of simultaneous equations.

$$x - 2y = 12$$

$$x = 10 + 4y \quad (6 \text{ marks})$$

- (b) Three kilograms of beans and two kilograms of posho cost shs 2,300. Two kilograms of beans and five kilograms of posho cost shs 700 more.

Find the cost of a kilogram of beans and a kilogram of posho (6 marks)

8. The table below shows the weight of children taken in a certain health centre in which the sum of all the frequencies is 80 and their mean is 12.2

weight	4-6	7-9	10-12	13-15	16-18	19-21	22-24
frequency	6	P_1	24	19	P_2	4	2

- (a) From the table

(i) State the class width (01 mark)

(ii) Compute the values of P_1 and P_2 (06 marks)

- (b) Draw a histogram and use it to estimate the mode (05 marks)

9. (a) Given that $\begin{bmatrix} 4 & x^2 + 2x \\ x^2 + y & xy \end{bmatrix} = \begin{bmatrix} 4 & 8 \\ y + x^2 & 12 \end{bmatrix}$. Determine the values of x and y (8 marks)

- (c) If $P = \begin{bmatrix} a & 4 \\ 2 & 2a \end{bmatrix}$. Find the values of a such that P has no inverse. (4 marks)

10. (a) Express $\frac{6x-30}{2x^2-50} + \frac{21}{x^2+3x-10}$ in the form $\frac{a}{x+b}$ and hence state the values of a and b (7 marks)

- (b) Find the values of P and q in $(x+p)(x+3) = x^2 + 14q + 12$ (05 marks)

11. A bag contains 5 blue pens and 3 red pens. Two pens are randomly picked one after the other without replacement.

- (a) Draw a probability tree diagram for the above information. (03 marks)

- (b) What is the probability that;

(i) All pens are red (03 marks)

(ii) All pens are blue (03 marks)

(iii) All pens are of the same colour (03 marks)

BY MR. EMMA