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MATHEMATICS

Paper 1

AUGUST, 2019



JINJA JOINT EXAMINATIONS BOARD

Uganda Certificate of Education

MOCK EXAMINATIONS – AUGUST, 2019

MATHEMATICS

Paper 1

2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES:

Answer ALL questions in Section A and not more than FIVE from section B.

Any additional question(s) answered will not be marked.

All necessary calculations must be shown and should be done on the same page

as the rest of the answer.

Mathematical tables and graph papers are provided.

Silent, non-programmable scientific calculators may be used.

SECTION A (40 MARKS)

Answer all questions in this section.

1. Expand and simplify (04marks)
2. Solve the equation (04marks)
3. The table below shows the marks scored by 40 candidates in a physics test.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Marks | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| No. of candidates | 2 | 3 | 5 | 8 | 12 | 6 | 3 | 1 |

Draw a histogram to represent this data. (04marks)

1. A translation maps a point M(2,3) onto M1(-4,5)

a) Determine the translation vector.

b) A point B1 is the image of the point B(5,2) under the same translation. Find the coordinates of B1. (04marks)

1. Make T the subject of the formula;

(4 marks)

1. Given that and find the matrix B. (04marks)
2. One interior angle of a regular polygon is 150o. i. Find the number of sides of the polygon

ii. Name the polygon in (i) (04marks)

1. Use a ruler and a pair of compasses only to construct a triangle ABC in which AB =4.5 cm BC=4.0cm and angle ABC 1350 measure AC. (04marks)
2. Find the inequality represented by the unshaded part in the diagram.

3

2

1

0

1

2

3

4

5

x -axis

y-axis

(04marks)

1. In a certain city 40% of the male are married. Two male are chosen at random in the city. Find the probability that one of them is married. (04marks)

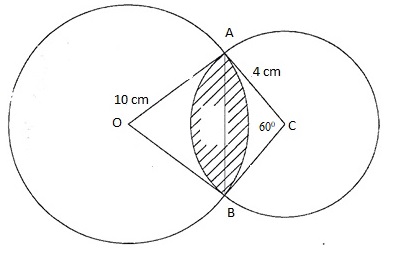
**SECTION B**

1. (a) Given that find (06marks)

(b) Given that find the value of (06marks)

1. The figure below shows two intersecting circles with centres O and C. OA =10cm

AC =4cm and .



Find i. the length of the chord AB

ii. the angle AOB

iii. area of the shaded region. (12 marks)

1. (a) A class of 50 students sat for a history test. The following table shows the distribution of the scores.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Score | 10 – 19 | 20 – 29 | 20 – 39 | 40 – 49 | 50 – 59 | 60 – 69 | 70 – 79 | 80 – 89 |
| No. of students | 6 | 7 | 8 | 10 | 9 | 6 | 3 | 1 |

1. State the modal class (01mark)
2. Calculate the mean score (05marks)
3. Draw a cumulative curve to represent the information and use it to estimate the median score. (06marks)

14 (a) Draw the graph of for .

Use scale horizontal 2cm to represent I unit and vertical 1cm to represent 1unit. (06marks)

(b) By drawing a suitable line on your graph, find two solutions to the equation

(06marks)

15 a) The points A(1, -3) B(1, 1) and C(2, 1) are vertices of a triangle ABC. The points A1,B1 and C1 are images of ABC under transformation whose matrix M= . The points A11B11 and C11 are the images of A1B1 and C1 under a transformation whose matrix N=

1. Find the coordinates of
2. A1B1 and C1
3. A11B11 and C11 (06marks)
4. Determine a single matrix which maps triangle A11B11 C11 back onto triangle ABC.

(06 marks)

16 a) Town P is 350 km on a bearing of 450 from another town T. Town N is 250km on a bearing of 1200 from town T. using a scale of 1cm to represent 50km, draw an accurate scale drawing to

1. Determine the
2. Distance between towns P and N.
3. Bearing of town P from N.
4. How long it would take a plane flying directly from N to P if its speed is 100km/hr.

(12marks)

17. Amega company has eight minibuses and seven Noah vans. The manager of the company has contracted to transport a party of 54 tourists to Karuma water falls in one convoy. A minibus can take a maximum of six tourists while a Noah van can take a maximum of five. If the manager decides to use x Noah vans and y minibuses,

a) Write down three inequalities other than and that have to be satisfied. (03marks)

b) Represent the above inequalities on one graph. (04marks)

c) If it costs shs300,000 per trip to run a minibus and shs100,000 per trip to run a Noah van, determine the least cost of organizing the tour. (05marks)