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Mathematics

Paper 1

PEAS UG NETWORK
UCE PRE-MOCK EXAM 2024
Uganda Certificate of Education
Mathematics
Paper 1
2 hours 15 minutes

INSTRUCTIONS TO CANDIDATES

This paper consists of **TWO** sections **A** and **B**.

The paper has six examination items.

SECTION A is ***COMPULSARY***

Section ***B*** has two parts ***I*** and ***II***. Answer **one ITEM** from each section.

Any additional item answered will not be scored

Silent, non programmable scientific calculators and mathematical table books with a list of formulae may be used.

SECTION A

Answer all the two items in this section

1. LC 3 of a newly created sub county was tasked to find out administrative boundaries of his sub county. He went to the land board and was given the coordinates mark points of the boundaries as shown in the table below;

Point	A	B	C	D	E	F	G	H
X coordinate	0	1	2	3	4	5	6	7
Y coordinate	8	3	0	-1	0	3	8	15

The purpose of the coordinate was to guide the council plan for the central location of the sub county headquarters. According to the plan, a road was to be graded joining the points A to G where their Health centre III was.

TASK

- I. Draw for the LC3 council their accurate boundaries
 - II. Find the general equation for the boundary points
 - III. Estimate the land area of the sub county
 - IV. Locate the sub county headquarters
 - V. Find the length of the planned road.
2. A school has finished to build a multipurpose main hall of five hundred million. The money was obtained from the bank as a loan at an interest of 12% simple interest rate per Annum. The loan was to be paid by the student's fees in period of five years. A school is to charge 820 learners equally. Secondly a solar light worth 4.6 million was to be purchased and installed by old students of the school. The solar at the company can be paid by cash with discount of 10% or hire purchase by making a down payment of 2.3 million and either pay monthly of 200,000 per month for a year or 63,000 weekly for 40 weeks.



Task

- a. Help the school administration to determine the amount of money they will pay to the bank.
- b. How much money will each child pay per term.
- c. Advise the old boys the better means of hire purchasing for the solar.

Section B

PART 1 Answer one item from this part

3. A weekly saving group of forty members save 10,000 each week for the whole year. In agreement Each member is mandated to make a profit of at least 40% of his /her savings. The money is loaned to members and it's distributed to them at the end of the savings time. However not all the members saved for all the period. The secretary summarised each members savings as below.

25	30	32	26	41	39	50	35
40	29	50	29	31	50	44	45
43	46	48	39	27	42	36	39
50	33	37	49	37	29	50	32
28	45	34	50	47	36	38	42

Task

- Help the group secretary to group the members weekly savings in fives starting from exactly the lowest saver.
 - Find the total amount of the money saved and minimum profit made by the whole group.
 - Determine average amount of money saved by members.
 - If you are to pick a member from the group, find the chance of getting a member whose saving were beyond average.
4. When conducting animal census in the sub county of 830 families its was found out that 600 families had cows,300 families had goats and 250 families had sheep. There were 200 families having cows and sheep.100 had goats and cows and 70 had sheep and animals' vacancies were to be planed for the sub county and the farmers were to contribute money to help facilitate Agric extension work to vaccinate the animals against foot and mouth disease. The contributions were depending on the kind of animal a family has. Those with only one animal type pay 1,000, those with only two animal type are to pay 2,500 and those with all the three-animal type will pay 5,000 per family.LC1 was to mobilize the farmers to pay the money and the chief was to pay him 2% of what all farmers contribute



TASK

- Help the sub county chief determine the groups of families to be charged
- How much money will the sub county get from the families
- How much money will the LC 1 will be paid.
- Which category will contribute the heights and by how much.

PART II

Answer only one item from this section.

5. A boda -boda rider in Mbale town got a customer who was to travel to his village in Sironko. To reach the village there were two routes. Direct route was not useable because of heavy rain at that time. The boda then decided to used the second route which was longer. It involved moving due north for 24km, then turn on direction of 060^0 for 18 km and finally on the bearing of 150^0 for just 8 km. The boda on return used a direct route up to town since there was no load to carry. On reaching town the boda discovered that he had used all the three and half litres of fuel he had put in the bike and in Mbale the cost of fuel was 5,400 a litre. But a customer was charged 35,000 for the journey.

Task

- Help the boda draw accurate location of the village.
 - Determine the fuel consumption of the bike
 - Find the profit of the boda
 - How much fuel the boda would have saved if he had used direct route only.
6. A welder plans to make a metallic box with a rectangular base measuring 1.5 m by 2m with height of 0.5m. To be neat the box was divided diagonally so that half way was for books and the other was for cloths. If the paint of 1 tin is enough to finish an area of 2.4m^2



Task

- Determine the area of the metal needed to cover the whole box.
- Find volume of the material that can be kept in the box.
- Find the length of diagonal to be fixed in the box.
- Find the number of tins needed to paint the whole box.

END