

FEBRUARY 2020
EBS 101
ELEMENTARY ALGEBRA
1 HOUR 20 MINUTES

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UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
SCHOOL OF EDUCATIONAL DEVELOPMENT AND OUTREACH
INSTITUTE OF EDUCATION

COLLEGES OF EDUCATION
FOUR-YEAR BACHELOR OF EDUCATION (B. ED)
FIRST YEAR, END-OF-FIRST SEMESTER EXAMINATION, FEBRUARY 2020

FEBRUARY 11, 2020

ELEMENTARY ALGEBRA

2:40 PM – 4:00 PM

SECTION B

Answer only **THREE** questions from this section. Show all workings clearly.

1. A class of 120 students were asked to indicate which of the three meals: Rice, Banku and Fufu they liked most. It was found that 50 liked Rice, 65 liked Banku and 35 liked Fufu. 15 liked rice and banku and 10 liked banku and fufu with 28 who liked exactly two of the three meals. 10 **did not** like any of the three meals.
- a) Illustrate the information on a vein diagram.
- b) Find how many liked
- i) All the three meals.
 - ii) Only rice and banku.
 - iii) Only banku and fufu. [20 marks]
- 2) a) The area of a plane shape is given by $A = (10x - 2)cm^2$. The area is *not greater or equal to* $12cm^2$. It is however *not less than* 2cm. Find the smallest possible area of this shape. [7 marks]
- b) The income tax in a certain state is calculated as follows: 2% on the first Gh¢1000.00, 3% on the next Gh¢2000.00, 4% on the next Gh¢3000.00, and 5% thereafter. Find the tax to be paid by an individual who earns an income of Gh¢25000.00 per month. [9 marks]

- c) A manufacturer packed 3,600 packets of drugs into 12 boxes. How many boxes of the same size would be needed to pack 6900 packets of the drugs? [4 marks]

3. a) Solve the following system of inequalities by shading the feasible region.

$$x + y \leq 6$$

$$3x - y \geq 2$$

$$3y - x \geq 2$$

[15 marks]

- b) Find the value of x if $(x - 1) : (2x + 7) = 1 : 3$

[5 marks]

4. a) Given that a baby is 8 months and her elder sister is 4 years old, express their ages as a ratio.

[4 marks]

- b) The sum of two consecutive odd numbers is 120. What are the numbers?

[4 marks]

- c) A movie theatre charges GH¢4.00 for each child's ticket and GH¢6.50 for each adult's ticket. On a particular night 200 tickets were sold amounting to GH¢1100.00 in ticket sales. Determine the number of tickets sold to:

i) children,

ii) adults.

[8 marks]

- d) Solve the following equations: $6y + 4 = 4y - 2$

[4 marks]