

MARCH 2021
EBS 101
ELEMENTARY ALGEBRA
1 HOUR 20 MINUTES

Candidate's Index Number

ABCE/MS/2020148

Signature:

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, MARCH 2021

MARCH 30, 2021

ELEMENTARY ALGEBRA

2:40 PM – 4:00 PM

SECTION B
(60 marks)

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

1. a) Find the intercepts of the equation, $y + 3x + 4 = 0$. [8 Marks]
b) Draw the graph of the given equation using only its intercepts obtained in 1.a). [5 Marks]
c) Solve for x in the following: $24_{\text{five}} + 11_x = 17_{\text{ten}}$ [7 Marks]

2. a) The University of Cape Coast awards a grade any percentage score earned. The grades and the associated range of scores are shown in the table below. Use the table to answer the questions that follow.

Grade	A	B+	B	C+	C	D+	D	E
Percentage Scores	≥ 80	75 - 79	70 - 74	65 - 69	60 - 64	55 - 59	50 - 54	Less than 50

- i) Is grade a function of the percent grade? Give reason for your answer. [3 Marks]
ii) Is the percent grade a function of the grade-point average? Give reason for your answer. [3 Marks]
- b) If $m\Delta n = mn + m + n$, show that the operation Δ is associative on the set of real numbers. [10 Marks]
- c) Determine whether the following sets are equal or not. Give a reason for your answer.

$$F = \{3, 5, 7, 9\}$$
$$G = \{5, 7, 9, 11\}$$

3.a) In a certain class, students are allowed to do either Mathematics or ICT or both. The number of students who do Mathematics only is 14 more than those doing both Mathematics and ICT. The number of students doing ICT only is 5 less than the number doing Mathematics and ICT. The number of students doing Mathematics is twice those doing ICT. Find the number of students who do both Mathematics and ICT. **[11 Marks]**

b) A manufacturer packed 3600 packets of drugs into 10 boxes. Find into how many boxes of the same size 5480 packets could be packed? **[5 Marks]**

c) Sixteen is a certain per cent of 80. Find the percent. **[4 Marks]**

4. a) Find the value of x that satisfies the equation: $2^{9x-3} = 8^{3-x}$ **[6 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) Find the value of x if $(x-1):(2x+7)=1:3$ **[5 marks]**

$10 = 2600$
 $x = 540$

$1 = x$
 $5 = 2$
 $1 = 6$