UNIVERSITY OF EDUCATION, WINNEBA
INSTITUTE FOR TEACHER EDUCATION AND
CONTINUING PROFESSIONAL DEVELOPMENT
(ITECPD)
END-OF-SECOND-SEMESTER EXAMINATION (August 2021)

COURSE CODE: EBC 122
COURSE TITLE: LEARNING, TEACHING AND APPLYING GEOMETRY AND
HANDLING DATA
TIME ALLOWED: 60 MINUTES

STUDENT'S INDEX NUMBER:

NAME OF COLLEGE:

GENERAL INSTRUCTIONS:
- **This paper is made up of ONE SECTION.**
- *Section ONE is made up of four essay type questions.*
- *Answer TWO questions in your answer booklet.*
- *Each question carries equal marks. You are expected to start each question from a new page.*
- *You are expected to handover your answer booklet to the invigilator before you leave the examination hall.*

SECTION TWO

1a. The marks obtained by 15 pupils in a test are as follows:

31, 29, 35, 37, 40, 38, 35, 29, 31, 38, 35, 32, 36, 36, 41.

Find the:

     i.   range
     ii.   median
     iii.   lower quartile
     iv.   upper quartile.

1b. Two fair dice are rolled together once.

     i.   What is the sample space of this experiment?
     ii.   Find the probability that:

        $\propto$) the sum of the numbers showing on the two dice is greater than 3?

        β) the probability that the numbers appearing the dice are the same?

2a. Two points A (65^0N, 30^0E) and B (15^0N, 30^0E) are located on the surface of the earth. Find the distance between these two points.

2b. The diameter of a cylinder is 20cm and its height is 21cm. find its volume in terms of π.

2c. What concept(s) is/are being applied when finding the distance between two points on a globe?

3a. A woman walked a distance of 500m due north. She continued to move 250m due east.

    i.   Sketch a diagram to illustrate the woman's movement.

    ii.   Find correct to the nearest whole number the distance between her initial and final positions.

3b. If $\tilde{a} = \begin{pmatrix} 3 \\ 4 \end{pmatrix}$, $\tilde{b} = \begin{pmatrix} -6 \\ -5 \end{pmatrix}$ and $\tilde{c} = \begin{pmatrix} 6 \\ 4 \end{pmatrix}$. Find

    i. $a + 2b - c$

    ii. $|a - b|$
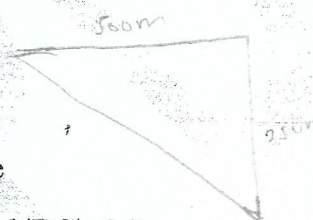
4. a. Using a ruler and a pair of compasses only, construct the

    i. triangle ABC with angle ABC =120°, |AB|=8.5cm and |BC|=7.5cm

    ii. l_1, the locus of a point 5cm from A

    iii. l_2, the perpendicular bisector of line AB

  b. Locate P and Q, the points of intersection of l_1 and l_2

  c. Locate M and N, the point where l1 intersects AC and AB respectively.

  d. Measure |PQ|