



**UNIVERSITY OF EDUCATION, WINNEBA
INSTITUTE FOR TEACHER EDUCATION AND
CONTINUING PROFESSIONAL DEVELOPMENT
(ITECPD)**



END-OF-SECOND-SEMESTER EXAMINATION AUGUST 2022

COURSE CODE: EBC 122

**COURSE TITLE: LEARNING, TEACHING AND APPLYING GEOMETRY AND
HANDLING DATA**

TIME ALLOWED: 50 MINUTES

8/4

STUDENT'S INDEX NUMBER

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- This paper is made up of ONE SECTION.
- Section B is made up of four essay type questions.
- Answer TWO questions. Write your responses in the answer booklet provided.
- All questions carry equal marks. You are expected to start your response to a question on a fresh page.
- You are expected to handover your answer booklet to the invigilator before you leave the examination hall.

SECTION B

1. (a) A ladder 13 m long is placed on the ground in such a way that it touches the top of a vertical wall 12 m high. Draw a diagram to represent the information, hence find the angle the ladder makes with the top of the wall to **one** decimal place. **6 marks**

(b). Given the vector $\overline{AB} = \begin{pmatrix} -3 \\ 8 \end{pmatrix}$ and $\overline{BC} = \begin{pmatrix} -5 \\ -2 \end{pmatrix}$, find the magnitude of \overline{AC} . **4 marks**

2. (a) Arnold walked a distance of 50km due north. He continued to move 25km due east.

i. Sketch a diagram to illustrate the Arnold's movement from the starting point. **1 mark**

ii. Find correct to the nearest whole number the distance between where he started the journey and where he ended the journey **1 mark**

iii. The bearing of his starting point from his end point. **2 marks**

(b) In a Mathematics test, the marks obtained by pupils are as follows;

2	3	5	2	3	7	7	5
9	2	7	3	7	3	7	

i. Determine the mean of the data set. **4marks**

ii. Explain how would you determine the interquartile range for the distribution? **2marks**

Please turn over

1 | Page



$$AC = AB + BC$$

$$\cos \theta = \frac{A}{H}$$

$$\cos \theta = \frac{12}{13} = 22.6^\circ$$

3 (a) Describe how you would use a ruler and a pair of compasses to construct a triangle with the following dimensions; $|BC| = 8\text{cm}$, and $|AB| = |AC| = 7\text{cm}$. **6 marks**

(b) Explain how you would bisect line segment PQ. **4marks**

(Hint: You may use a diagram to support your descriptions).

4. A teacher, in demonstrating the formation of a cone asked the pupils to draw a circle of radius 5cm. A sector of angle 120° was then cut out and the remaining folded with the straight edges coinciding to form a cone. Determine the ...

i. base radius of the cone formed? **4 marks**

ii. perpendicular height of the cone. **3 marks**

iii. the curved surface area of the cone (Hint leave your answer in terms of π) **3marks**

$$r = \frac{\theta}{360} \times L$$

120 L



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$|BC| = 8\text{cm}$ $|AB| = |AC| = 7\text{cm}$

$$\cos \theta = \frac{A}{H}$$

$$\cos \theta = \frac{12}{13}$$

$$\theta = \cos^{-1}\left(\frac{12}{13}\right)$$

$$\theta = 22.6^\circ$$

