

SEPTEMBER 2023  
EBS 124/124J  
COLLEGE GEOMETRY  
1 HOUR 30 MINUTES

Candidate's Index Number
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-SECOND SEMESTER EXAMINATION, SEPT./OCT. 2023

29<sup>TH</sup> SEPTEMBER 2023

COLLEGE GEOMETRY

12:30 PM – 2:00 PM

SECTION B  
(40 MARKS)

Answer only Two questions from this section.

Show all workings clearly including well-labelled diagrams where necessary.

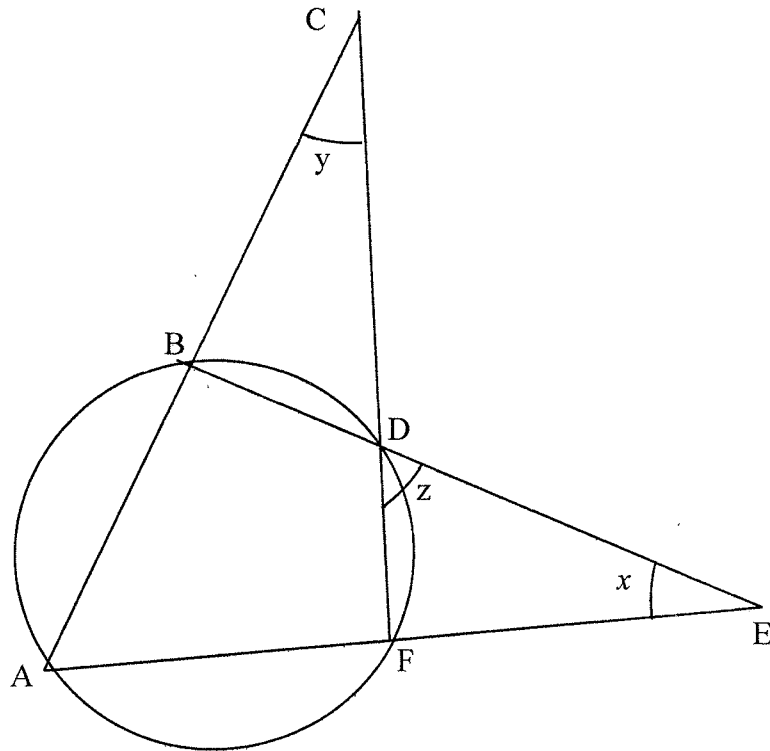
Please, note that if you answer more than two questions, only the first two will be marked.

1.

- a. In a triangle ABC, a line DE intersects side AB at point D, and side AC at point E, dividing both sides into segments in the ratio 2:3. If AB=10 cm and AC= 12cm, find the lengths of line segments; [12 marks]
- i. AD
  - ii. DB
  - iii. AE
  - iv. EC
- b. Given a equilateral triangle with a side length of 12cm,
- i. calculate the height of the triangle [5 marks]
  - ii. find its area. [3 marks]

2.

- a. Find the equation to the tangent of the circle:  $x^2 + y^2 + 3x + 2y - 9 = 0$  at the point (1, 0) on the circle. [10 marks]
- b. In the diagram, ABDF is on a circle. ABC, CDF and BDE are straight lines. If  $x + y = 65$ , find;
- i. correct to the nearest degree, the value of z. [10 marks]
  - ii. angle BAF.



- 3.
- Find, correct to two decimal places, the total surface area of a regular square pyramid that has base length of 30 cm and lateral length of 45 cm. **[10 marks]**
  - Show that the line  $4x + 3y - 15 = 0$  is a tangent to the circle with centre as the origin and radius 3 units. **[5 marks]**
  - Find the distance between the parallel lines  $2x - y + 3 = 0$  and  $y = 2x - 1$ . **[5 marks]**
4. Using a ruler and a pair of compasses **only** **[20 marks]**
- Construct a triangle PQR with  $|PQ| = 7\text{cm}$ ,  $|QR| = 4\text{cm}$  and  $\angle PQR = 135^\circ$
  - Construct perpendicular bisector of PQ and QR and name their point of intersection O.
  - Draw a circle with centre O and  $|OQ|$  as the radius.
  - Measure:
    - $|PR|$  and,
    - $\angle QPR$