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

Candidate's Index Number
ESCE/JTU/22/0628
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

29TH 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,

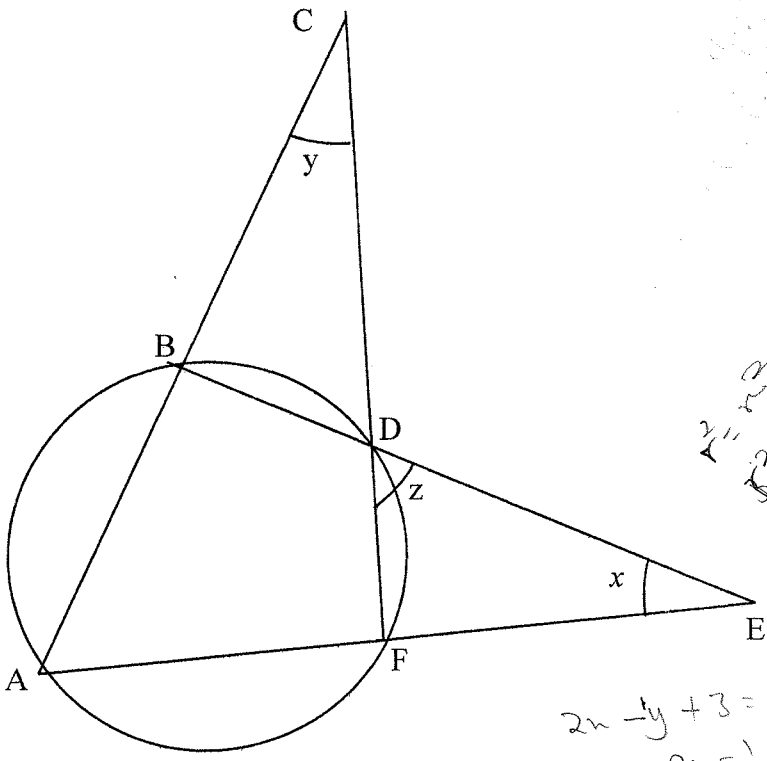
i. calculate the height of the triangle **[5 marks]**
ii. find its area. **[3 marks]**

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; **[10 marks]**

i. correct to the nearest degree, the value of z.
ii. angle BAF.



3.

a. 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]**

b. 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]**

c. 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]**

a. Construct a triangle PQR with |PQ| = 7cm, |QR| = 4cm and <PQR = 135^0

b. Construct perpendicular bisector of PQ and QR and name their point of intersection O.

c. Draw a circle with centre O and |OQ| as the radius.

d. Measure:
   i. |PR| and,
   ii. <QPR