OCTOBER 2020
EBS 124J
COLLEGE GEOMETRY
1 HOUR 30 MINUTES

Candidate's Index Number:
ABCE|JHS/19|JHS
Signature: mf

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
SCHOOL OF EDUCATIONAL DEVELOPMENT AND OUTREACH
INSTITUTE OF EDUCATION

$t = 8^0$

COLLEGES OF EDUCATION
FOUR-YEAR BACHELOR OF EDUCATION (B.ED)
FIRST YEAR, END-OF-SECOND SEMESTER EXAMINATION, OCTOBER, 2020

OCTOBER 19, 2020   COLLEGE GEOMETRY   2:30 PM – 4:00 PM

SECTION B
EASY QUESTIONS

Answer TWO questions from this section.

1. Using a ruler and a pair of compasses only;
   a. Construct triangle ABC such that $|AB| = 10cm$, $|BC| = 6cm$ and angle ABC = 45^0.

   b. Locate the point 'D' inside the triangle ABC such that D is equidistant from AB and AC and 5cm from B.

   c. i. Construct the perpendicular to AC through D. Label, Y, the point of intersection of the perpendicular from D and AC.
      ii. Measure AY

2. In the diagram, A, B, C and D are points on the circle with Centre O. If angle BDC = 40^0 and BEC = 110^0, and the angle marked: **p, q, r, s** and **t**.
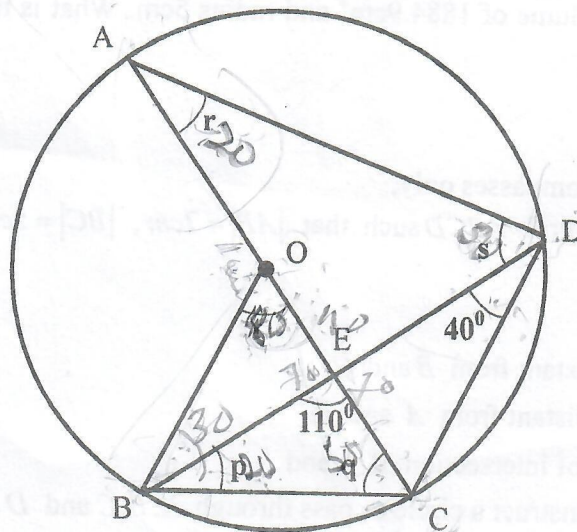
3.

a. Find the perpendicular distance of the point A(-3, 2) from the line $2x - 5y = 6$. **(5marks)**

b. In the diagram below, 0 is the centre of the circle and the angle between the tangent and the chord yz is 62°.
   i.   Find the value of angle **xyz**. **(5marks)**
   ii. Calculate the value of (q+p) **(5marks)**
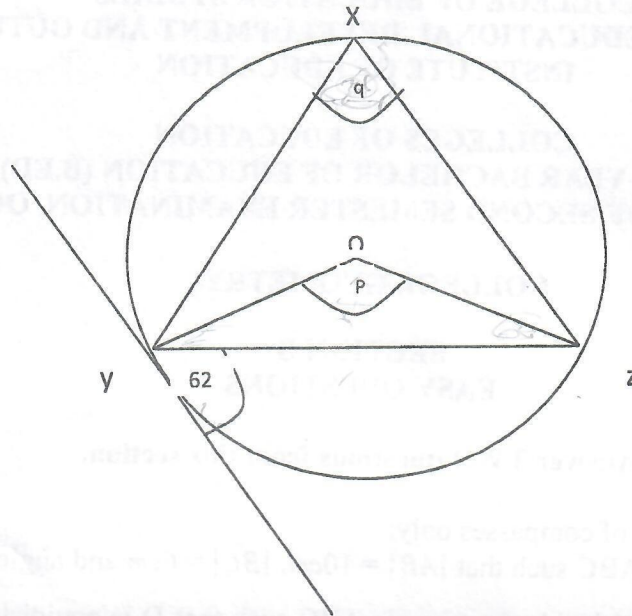
c. Find the ratio in which P(2,3) divides the lines joining A(4,3) and B(-1,3).

4.

a. Find, correct to two significant figures, the radius of a sphere whose surface area is 556cm^3 (Take $\pi = \frac{22}{7}$).

b. The end points of a distance of a circle are (-2,3) and (3,4). What is the equation of the circle?

c. A solid cylinder has volume of 1884.9cm^3 and radius 5cm. What is the total surface area of cylinder?

5. Using ruler and a pair of compasses only,

a. construct the quadrilateral $ABCD$ such that $|AB| = 7cm$, $|BC| = 5cm$, $\angle ABC = 120^0$ and $|AD| = |AC| = |DC|$

b. construct the locus
   i. l_1 of points equidistant from B and C
   ii. l_2 of points equidistant from A and B

c. i.   locate O, the point of intersection of l_1 and l_2
   ii. with O as centre, construct a circle to pass through A, B, C and D.

d. Measure:
   i. $\angle BCD$
   ii. the radius of the circle.
   iii. calculate the area of the circle in c (ii). (Take $\pi = \dfrac{22}{7}$)

e. Find the equation of the tangent to the circle $5x^2 + 5y^2 - 3x - 2y - 23 = 0$ at the point $(2, 1)$