FEBRUARY 2020
EBS 145
ELEMENTARY GEOMETRY
1 HOUR 20 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-FIRST SEMESTER EXAMINATION, FEBRUARY 2020

FEBRUARY 13, 2020 ELEMENTARY GEOMETRY 2:40 PM – 4:00 PM

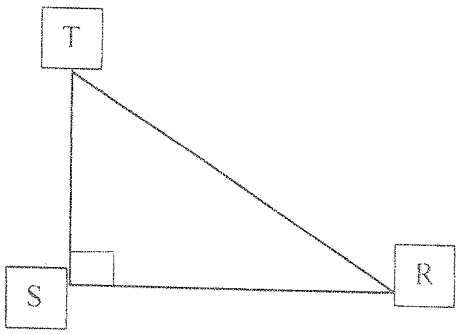
SECTION B
(60 MARKS)

Answer only THREE questions from this section. Show all workings clearly.

1. a) Find the measure of each interior angle of a ceramic floor tile in the shape of a regular octagon. [5 marks]

   b) Each interior angle of a certain regular polygon has a measure of 144°. Find;
      i) its number of sides [6 marks]
      ii) identify the type of polygon [1 Mark]

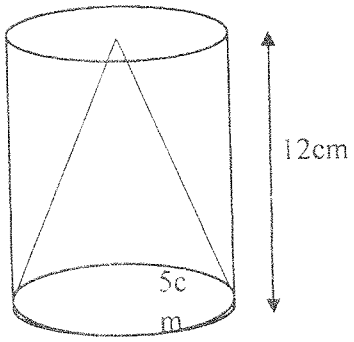
   c) In triangle ΔRST, $SR = ST$ as shown in the figure below. What is the length of the side RS if RT = $12\sqrt{2}$? [8 marks]



2. The dimensions of a cuboid are in the ratio of 8:5:3 has a surface area of $63{,}200cm^2$.
   a) Determine the dimensions of the cuboid. [10 marks]
   b) Calculate the volume of this cuboid. [3 marks]

c) Determine whether the following pair of lines $3y = 2x + 4$ and $3y = -2x - 7$ are either parallel, intersect or perpendicular. [7 marks]

3. a) A cone contained in a cylinder so that their bases and heights are the same as in the figure below. Calculate the volume of the space between the cylinder and the cone, i.e. the space inside the cylinder but outside the cone. (Take $\pi = 3.142$). [9 marks]



b) Find the total area of a regular square pyramid that has base edges of length 4m and lateral edges of length 6m. [11 marks]

4) a) A right-angled triangle has the two shorter lengths with dimensions x cm and $(x+1)$ cm. If the longer length is 5cm;

(i) Write down the quadratic equation that represents the problem. [2 marks]

(ii) Hence, solve for x. [8 marks]

b) Using a ruler and pair of compasses only, construct:

i) Triangle ABC, where $|AB| = 7cm$, $|AC| = 8cm$ and $\angle ABC = 105^{\circ}$.

ii) X, the locus of points 6cm from C.

iii) Y, the locus of points equidistant from $\overline{AB}$ and $\overline{BC}$ and to cut X at P and R.

c) Measure:

i) $|BC|$ and

ii) $|PR|$. [8 marks]