Candidate's Index Number
Signature:

APRIL 2021
EBS 145
ELEMENTARY GEOMETRY
2 HOURS

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, APRIL 2021

APRIL 1, 2021 ELEMENTARY GEOMETRY 2:00 PM – 2:40 PM

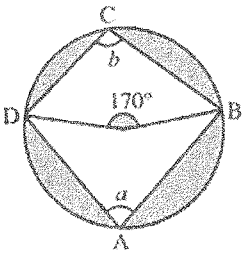
This paper consists of two sections, A and B. Answer all the questions in Section A and THREE questions in Section B. Section A will be collected after the first 40 minutes.

SECTION A
(40 MARKS)
Answer all the questions in this section

For items 1 to 20, each stem is followed by four options lettered A to D. Read each item carefully and circle the letter that corresponds to the correct or best option.

1. A container is in the shape of a cube of side 20 cm. How much sugar can it hold?
   A. $400cm^3$
   B. $800cm^3$
   C. $4000cm^3$
   D. $8000cm^3$

2. Given the figure below, find the value of the angle marked b.



   A. 60°
   B. 70°
   C. 95°
   D. 100°

3. The line $6x - ky = 2$ passes through the point $(3,2)$. What is the value of k?

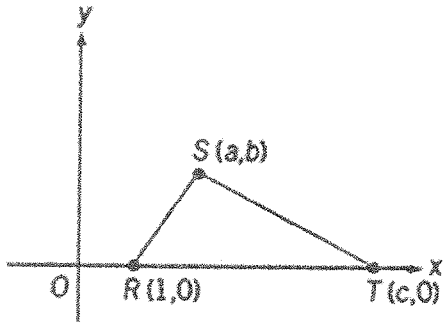
A. -8

B. $-\frac{10}{3}$

C. $\frac{10}{3}$

D. 8

Use the figure below to answer questions 4 to 6



4. Find the slope of the line ST.

A. $\frac{b}{c-a}$

B. $-\frac{b}{c-a}$

C. $\frac{c-a}{b}$

D. $-\frac{c-a}{b}$

5. What is the distance between R and T?

A. $c-1$

B. $\sqrt{c-1}$

C. c^2

D. c^2+1

6. If the cordinates of the mid-point of SR is $(4,8)$, what is the value of $b-a$?

A. 8

B. 9

C. 10

D. 12

14. What is the equation of the line joining R and Q in the figure above?

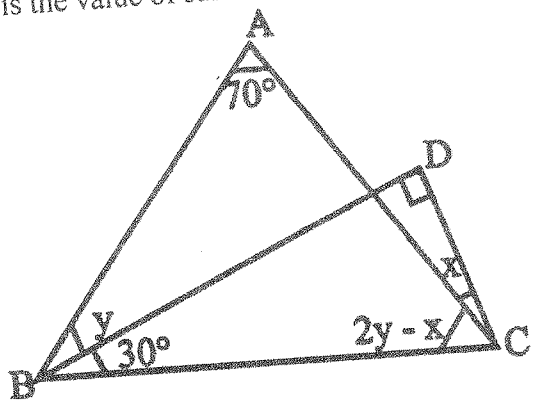
A. $5y-3x=19$

B. $5y-x=12$

C. $2y-3x=9$

D. $2y-8x=17$

15. What is the value of sum of angles <DCA and <ABD in the figure below?



A. 100°

B. 70°

C. 50°

D. 40°

16. A sector of a circle of radius 14cm subtends an angle of 54^0 at the centre. Calculate the area of the sector. (Take $\pi = \frac{22}{7}$).

A. $29.4cm^2$

B. $49.2cm^2$

C. $92.4cm^2$

D. $94.2cm^2$

17. A classroom is 4 meters high, 6 meters wide and 10 meters long. According to a health regulation, every person in the room must have 5 cubic meters of air. How many people the room can the room contain?

A. 42 people

B. 44 people

C. 46 people

D. 48 people

18. A right-angled triangle has its hypotenuse measuring 25 cm and one of the shorter sides measuring 7 cm. Calculate the length of the third side.

A. 18cm

B. 20cm

C. 22cm

D. 24cm

19. Find the midpoint M of a line segment AB with the following coordinates: A(8, 3) and B(-10, 2).

A. $\left(-5, \frac{2}{5}\right)$

B. $\left(-2, \frac{1}{5}\right)$

C. $\left(-1, \frac{5}{2}\right)$

D. $\left(-1, \frac{2}{5}\right)$

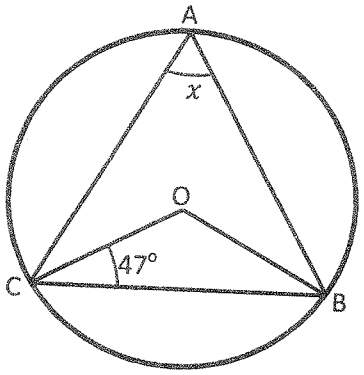
20. Given that O is the centre of the circle and angle OCB = 47° as shown in the diagram below, find the value of the angle marked x.

A. 43°

B. 76°

C. 86°

D. 172°



7. A square has a perimeter of 64 cm. If the area of a circle is equal to that of the square, what is the circumference of the circle?
   A. 24.45 cm
   B. 56.72 cm
   C. 86.5 cm
   D. 51.23 cm

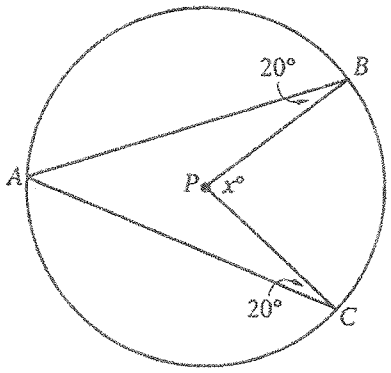
8. A rope 20.6 metres long is cut into two pieces. If the length of one piece is 2.8m shorter than the other, what is the length , in metres of the longer piece of rope?
   A. 8.9m
   B. 10.3m
   C. 11.7m
   D. 17.8m

9. The area of a circle is 89.42 sq.cm. What is its circumference? $\left[\pi = \frac{22}{7}\right]$
   A. 35.33 cm.
   B. 32.25 cm.
   C. 33.53 cm.
   D. 35.55 cm.

10. A right circular cone has a base radius of 35cm and height of 45 cm. Calculate, correct to the nearest integer, the total surface area, in sq.cm of the cone. $\left[\pi = \frac{22}{7}\right]$
   A. 57,727
   B. 15, 222
   C. 10, 117
   D. 8,798

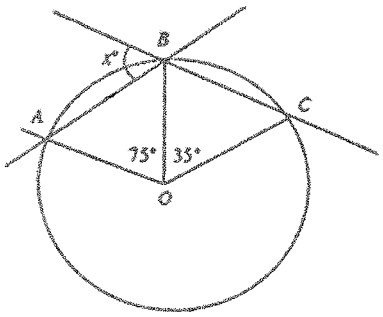
11. A pyramid with a square base has an altitude of 25 cm. if the edge of the base is 15 cm, calculate for the volume, in cm, of the pyramid.
   A. 1728
   B. 375
   C. 1875
   D. 755

12. The point P is the centre of the circle in the figure below. What is the value of x?



A. 60^0
B. 70^0
C. 80^0
D. 50^0

13. In the figure A,B, and C are points won the circle. What is the value of x ?



A. 55^0
B. 72.5^0
C. 52.5^0
D. 70^0

Use the figure below to asnwer the question that follow.