JUNE 2021
EBS 124J
COLLEGE GEOMETRY
30 MINUTES

Candidate's Index Number:
FSCE/JHS/20/00099
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 MID-SEMESTER QUIZ, JUNE, 2021

JUNE 21, 2021 **COLLEGE GEOMETRY** **12:00 PM – 12:30 PM**

Answer ALL the questions.
(20 marks)

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. Which one of the following solids has a uniform cross-section?
   A. Cone.
   B. Prism.
   C. Pyramid.
   D. Sphere.

2. A cylindrical tin of diameter 9cm and height 224cm is half filled with water. Find the volume of water in the tin.
   A. $4752cm^3$
   B. $7128cm^3$
   C. $14256cm^3$
   D. $57024cm^3$

3. Given that $P(4, -1)$ and $Q(0, 3)$ are the points in the Cartesian plane, find the point S which divides line QP **externally** in the ratio **3: 5**.
   A. $(10, -7)$
   B. $(-10, 7)$
   C. $(10, 7)$
   D. $(-10, -7)$

4. The length of the diagonal of a square is 10cm. What is the area of the square?
   A. $\sqrt{50}cm^2$
   B. $\sqrt{100}cm^2$
   C. $50cm^2$
   D. $100cm^2$

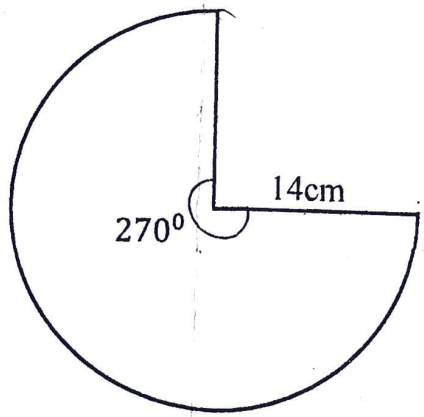
5. The area of a rectangular sheet is $108m^2$. If the length of the sheet is three times its breadth, what is the length of the rectangle?
   A. 6cm
   B. 18cm
   C. 36cm
   D. 108cm

6. The height of an equilateral triangle is $\sqrt{3}cm$. What is the perimeter of the triangle?
   A. 2cm
   B. 3cm
   C. 6cm
   D. 12cm

7. Which of the following formulas' is used to find the total surface area of a closed cylinder?
   A. $\pi r^2 + 2\pi rh$
   B. $2\pi r^2 + 2\pi r$
   C. $2\pi r(r + 2h)$
   D. $2\pi r(r + h)$

8. A tool box with a lid has dimensions 16cm by 12cm by 10cm. Calculate the total surface area of the box
   A. $240cm^2$
   B. $320cm^2$
   C. $384cm^2$
   D. $944cm^2$

The diagram below shows a sector of a circle of radius 14cm. The angle at the centre is 270^0. The sector is folded to form a cone. [Take $\pi = 22/7$]. Use this information to answer questions 9 and 10.

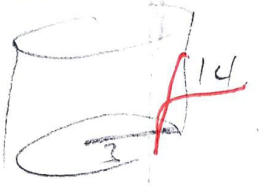


9. What is the base radius of the cone formed?
   A. 7cm
   B. 10.5cm
   C. 12.5cm
   D. 14cm

10. Calculate the surface area of the cone.
    A. $22cm^2$
    B. $225cm^2$
    C. $278cm^2$
    D. $462cm^2$

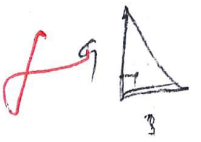
11. Given that $A(11,1)$ and $B(2,7)$ are two points on a line. Find the coordinates of the point, which divides AB internally in the ratio 2:1
    A. (5, 5)
    B. (2, 5)
    C. (7, 11)
    D. (11, 9)

12. A cylindrical tank that has not been covered is fixed on the ground on a concrete slab. The diameter of the tank is *6m* and its height is *14m*. A painter is charging GH¢5.00 per square meter. How much will it cost to paint the outside of the tank? (Take $\pi = \frac{22}{7}$)
    A. GH¢84.00
    B. GH¢264.00
    C. GH¢420.00
    D. GH¢1320.00



13. Q divides the line AB, $A(-1,2)$ and $B(3,4)$ externally in the ratio 3: 2. Find the coordinates of Q.
    A. (1, 7)
    B. (2, 6)
    C. (11, 8)
    D. $\left(\frac{8}{5}, 11\right)$

14. The volume of a cone with height 9cm is $144cm^3$. Find its base radius.
    A. 3cm
    B. 4cm
    C. 15cm
    D. 23cm



15. The volume of a cube is $512cm^3$, Find the total surface area.
    A. $9cm^2$
    B. $81cm^2$
    C. $243cm^2$
    D. $384cm^2$

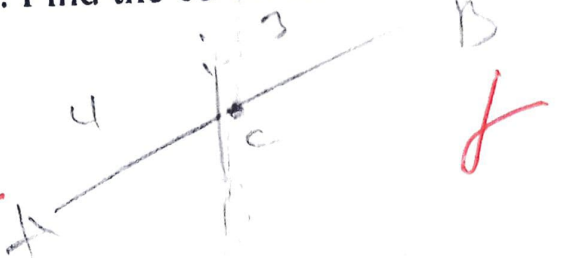
16. The diameter of a base radius of a cylinder is 14cm and its volume is $720cm^3$. Find the height of the cylinder. (Take $\pi = \frac{22}{7}$)
    A. 4.5cm
    B. 4.7cm
    C. 5.5cm
    D. 5.7cm

17. Find the points dividing the line AB, A (1, 2) and B (3, 1) externally in the ratio 1:2.

A. $(\frac{5}{3}, \frac{5}{3})$
B. (-1, 3)
C. (1, -3)
D. $(\frac{-3}{5}, \frac{3}{5})$

18. A point A (4, 5) and B (7, -1) are two given points and the point C divides the line segment AB externally in the ratio 4: 3. Find the co-ordinates of C.

A. (-16, -19)
B. (-16, 19)
C. (-19, 16)
D. (16, -19)



19. The volume of a cone with height 9 cm is 462 cm^3. Find the radius of the cone.

(Take $\pi = \frac{22}{7}$)

A. 6 cm
B. 7 cm
C. 8 cm
D. 9 cm

20. The volume of a cube is 1728 cm^3. Find the total surface area of the cube.

A. 72 cm^2
B. 144 cm^2
C. 384 cm^2
D. 864 cm^2

MATHEMATICS AND ICT DEPARTMENT

COLLEGE GEOMETRY (EBS 124J)

25 MINS. **QUIZ** **OCTOBER 14, 2020**

1. The diameter of a circle has length 12. The center is at (-5, 2). Give the equation of the circle.
   A. $(x - 2)^2 + (y + 5)^2 = 36$
   B. $(x - 5)^2 + (y + 2)^2 = 6$
   C. $(x + 5)^2 + (y - 2)^2 = 36$
   D. $(x + 2)^2 + (y - 5)^2 = 6$

2. Which point is on the following circle $(x - 6)^2 + (y + 8)^2 = 100$.
   A. (5,4)
   B. (3, -2)
   C. (-1, 0)
   D. (-2, -2)

3. A line through point of contact and passing through centre of circle is known as …
   A. tangent
   B. Chord
   C. Normal
   D. segment

4. A tangent is drawn from a point at a distance of 17 cm of circle C(0, r) of radius 8 cm. The length of its tangent is
   A. 5 cm
   B. 9 cm
   C. 15 cm
   D. 23 cm

5. What is the shortest distance between the line given by $-2x + 3y + 4 = 0$ and the point (5,6)?
   A. 4.5 units
   B. 5.4 units
   C. 4.3 units
   D. 3.3 units

6. The co-ordinates of the point which divides the line-segment joining the points (2, - 5) and (- 3, - 2) externally in the ratio 4:3 is .....

   A. (-18, 7)
   B. (-13, 9)
   C. (14, 11)
   D. (8, 13)

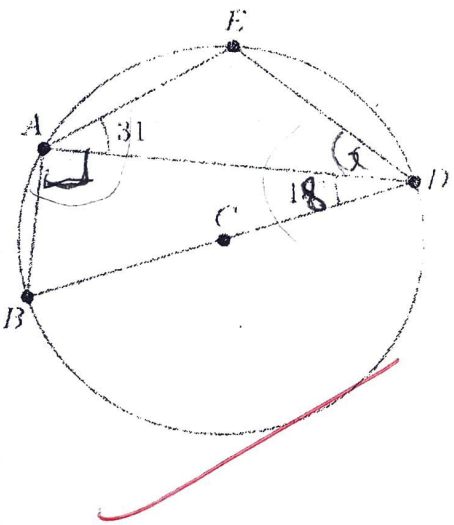
7. What is the angle the line $\sqrt{3}y - x = 6$ makes with the x-axis?

   A. 45^0
   B. 30^0
   C. 60^0
   D. 90^0

8. Find the area of trapezium whose parallel sides are 20 cm and 18 cm long, and the distance between them is 15 cm.

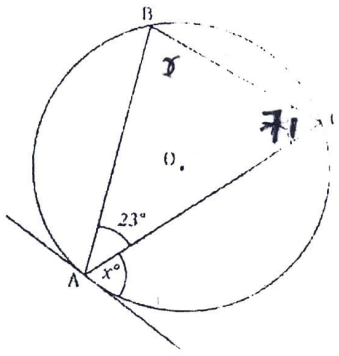
   A. 225 cm^2
   B. 275 cm^2
   C. 285 cm^2
   D. 315 cm^2

9. Below is a circle with centre C. A, B, D, and E are points on the circumference. BD is a diameter of the circle. Angle CDA is 18° and angle DAE is 31. Find the size of angle EDA.



   A. 55^0
   B. 73^0
   C. 41^0
   D. 26^0

10. Below is a circle with centre O. A, B, and C are points on the circumference. A tangent to the circles passes through point A. Given that angle BAC is 23° and angle ACB is 71°, find the size of angle x°.

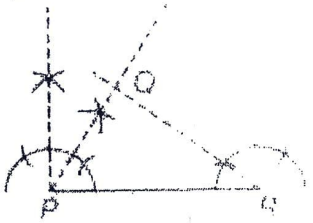


A. 86^0
B. 67^0
C. 59^0
D. 90^0

11. In the given constructed figure, the value of $\angle BAC$ is

A. 45^0
B. 35^0
C. 30^0
D. 55^0

12. In the given constructed figure, the value of $\angle BAC$ is



A. 35^0
B. 45^0
C. 55^0
D. 30^0

13. Which of the following is an equation of a circle?
A. $x^2 - y^2 + 2x + 3y - 4 = 0$
B. $x^2 + y^2 + 4x - y + 14 = 0$
C. $2x^2 + 2y^2 + 5x + 3y + 4 = 0$
D. $x^2 - y^2 + 2x + 3y + 8 = 0$

14. What is the perpendicular distance of a point (-4, 3) from the line $2y = 2x - 4$?
A. $\frac{5}{2}\sqrt{2}$
B. $\frac{7}{2}\sqrt{5}$
C. $\frac{5}{2}\sqrt{5}$
D. $\frac{9}{2}\sqrt{2}$

15. What is the number of surfaces of the net of a closed cylinder?
A. 6
B. 5
C. 2
D. 3

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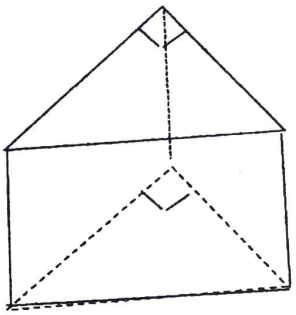
COLLEGES OF EDUCATION
FOUR-YEAR BACHELOR OF EDUCATION (B. ED)
FIRST YEAR, SECOND SEMESTER QUIZ II, JULY 2019

JULY 1, 2019 **COLLEGE GEOMETRY** **8:00 AM – 8:30 AM**

Answer ALL the questions.

For items 1 to 15, 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. What is the correct name of the solid figure shown below?

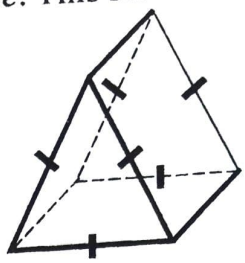


   A. Rectangular prism
   B. Tetrahedron
   C. Triangular prism
   D. Triangular pyramid

2. The height of a pyramid on a square base is 18 cm. If the length of a side of the base is 5 cm, find the volume of the pyramid.
   A. 125 cm^3
   B. 150 cm^3
   C. 324 cm^3
   D. 450 cm^3

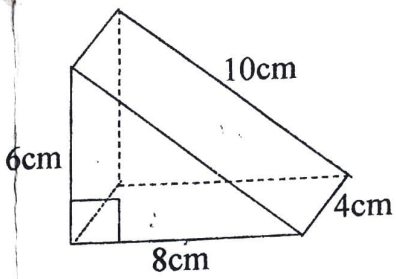
3. A closed rectangular metal box is 90 cm long, 60 cm wide and 45 cm high. Calculate the minimum amount of metal used to make the box.
   A. 12150 cm^2
   B. 24300 cm^2
   C. 243000 cm^2
   D. 36400 cm^2

4. The solid figure below is *a pyramid with a square base*. This statement is _____.



A. False
B. Not always false
C. True

5. Find the surface area of the figure shown below.



A. 72 cm^2
B. 96cm^2
C. 120 cm^2
D. 144 cm^2

6. A 182 cm long cylindrical plastic pipe has a diameter of 10 cm. how much plastic is used to make the pipe? $\left(Take\ \pi = \frac{22}{7}\right)$

A. 5720 cm^2
B. 5877 cm^2
C. 11444 cm^2
D. 14300 cm^2

The radius of a sphere is 21cm. Use the information to answer questions **7** and **8**. Take $\pi = 3.14$. and round your answer to the nearest whole number.

7. What is the surface area of the sphere?

A. 1846 cm^2
B. 5539 cm^2
C. 38772 cm^2
D. 116318 cm^2

8. Calculate the volume of the sphere.

A. 1846 cm^3
B. 5539 cm^3
C. 38772 cm^3
D. 116318 cm^3

9. A rectangular box has a base measuring70 cm by 50 cm. The height of the box is 38 cm. What is the maximum number of unit centimeter cubes that can fill the box?
   A. 8060 cm^3
   B. 16120 cm^3
   C. 31600 cm^3
   D. 133000 cm^3

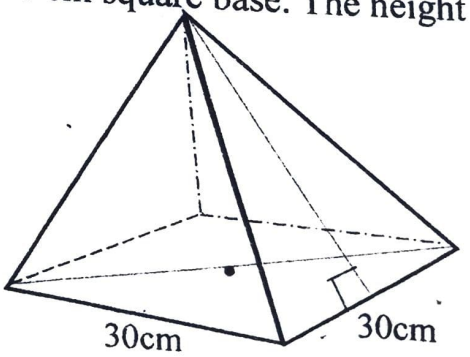
10. Which one of the following statements is **always true** about pyramids? The base is a _____
   A. circle and lateral sides are triangles.
   B. polygon and lateral sides are rectangles.
   C. polygon and the lateral sides are triangles.
   D. triangle and the lateral sides are polygons.

A circular drum, closed at both ends, has a radius of 20 cm and height of 105cm. Use the information to answer questions **11** and **12**. (Take $\pi = \frac{22}{7}$)

11. Find, correct to one decimal place, the total surface area of the drum.
   A. 2514.3 cm^2
   B. 13200.0 cm^2
   C. 15714.3 cm^2
   D. 132000.0 cm^2

12. Calculate the maximum amount of oil the drum can contain.
   A. 13200 cm^3
   B. 15714 cm^3
   C. 25143 cm^3
   D. 132000 cm^2

13. The diagram below is a sketch of a pyramid with a 30 cm by 30 cm square base. The height of the pyramid is 15 cm. Calculate the slant height.
   A. 21.2 cm
   B. 21.8 cm
   C. 25.5 cm
   D. 33.5 cm



14. Find the volume of a cone with a height of 45 cm and a diameter of 60 cm. (Take $\pi = 3.14$)

A. 1413 cm^3
B. 4239 cm^3
C. 43 390 cm^2
D. 127170 cm^3

15. What are the coordinates of the point which divides the line joining A(1, 2) and B(6, 7) internally in the ratio **2:3**?

A. (3, 4)
B. (3, 5)
C. (4, 3)
D. (4, 5)