SEPTEMBER 2023
EBS 124/124J
COLLEGE GEOMETRY
30 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, SECOND SEMESTER MID-SEMESTER QUIZ, SEPTEMBER 2023

25TH SEPTEMBER 2023 **COLLEGE GEOMETRY** **10:30 AM – 11:00 AM**

Answer ALL the questions.
[20 MARKS]

Items 1 to 20 are stems followed by four options lettered A to D. Read each item carefully and circle the letter of the correct or best option.

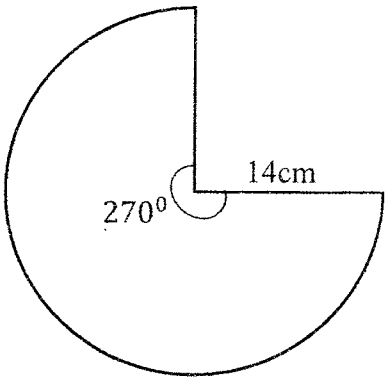
1. The area of a rectangular sheet is $108m^2$. If the length of the sheet is three times its breadth, what is the length of the rectangle?
   A. 6cm
   B. 18cm
   C. 36cm
   D. 108cm

2. 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

3. 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. $2\pi r(r + h)$

4. 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 5 and 6.



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

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

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

8. 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. $57024cm^3$

9. 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. $(-10, -7)$

10. 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. $100cm^2$

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. 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)

14. 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

15. 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

16. 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. $\left(\frac{8}{5}, 11\right)$

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

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

19. 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

20. 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. $(\frac{-3}{5}, \frac{3}{5})$