# BRAINWAVE K.C.P.E EXAMINATION PANEL
## STANDARD EIGHT
## YEAR 2022

### 004

## — MATHEMATICS —

Time :2 HOURS

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## READ THESE INSTRUCTIONS CAREFULLY.

1. You have been given this question booklet and a separate answer sheet. The question booklet contains 50 questions.

2. Do any necessary rough work in this booklet.

3. When you have chosen your answer, mark it on the **ANSWER SHEET**, not in the question paper.

### HOW TO USE THE ANSWER SHEET.
4. Use an ordinary pencil only.

5. Make sure that you have written on the answer sheet.

   **YOUR INDEX NUMBER**
   **YOUR NAME**
   **NAME OF YOUR SCHOOL**

6. By drawing a **dark line** inside the correct numbered boxes mark your full index number (i.e. school code Number and the three -figure candidate's Number) in the grid near the top of the answer sheet.

7. Do not make any marks outside the boxes.

8. Keep your answer sheet as clean as possible and **Do not fold it.**

9. For each questions 1-50 four answers are given. The answers are lettered A, B, C, D. In each case Only One of the four answers is correct. Chose the **correct answer.**

10. On the answer sheet show the correct answer by drawing a dark line inside the box in which the letter you have chosen is written.

**Example**
**In the question Booklet:**

24. Work out:  square root of $\sqrt{81}$
    A. 9
    B. 4.5
    C. 21
    D. 3

The correct answer is **D(3)**
On the answer sheet:
4. [A] [B] [C] [D]    14. [A] [B] [C] [D]    24. [A] [B] [C] [D]    34.  [A] [B] [C] [D]
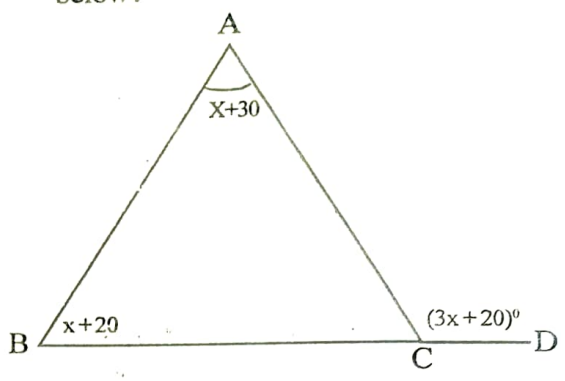
In the set boxes numbered 24, the box with letter **D** printed in it is marked.

11. Your dark line Must be within the box. Make your line as dark as possible.

12. For each question **Only One** box is to be marked in each set of four boxes.

**Candidates should check the question papers to ensure that all questions are printed.**

1. What is **707240302.015** in words?
   A. Seven hundred and seven millions, two hundred and four, three hundred and two and fifteen thousands.
   B. Seven hundred and seven millions, two hundred and forty thousands, three hundred and two point zero one five.
   C. Seven hundred and seven millions, two hundred and forty thousands, three hundred and two and fifteen thousands.
   D. Seven hundred and seven millions, two hundred and forty thousands, three hundred and two and fifteen hundreds.

2. What is the value of
   $$\frac{0.54 \times 7.2 \times 0.24}{0.6 \times 0.36 \times 0.4}$$
   A. 10.8
   B. 108
   C. 1080
   D. 1.08

3. How many times is the total value of the digit in the ten thousands place value more than the total value of the digit in the hundreds place value in the number 283462?
   A. 79600
   B. 80200
   C. 50
   D. 200

4. What is the difference of the sum of the alternating digits in the number 43378?
   A. 5
   B. 4
   C. 0
   D. 6

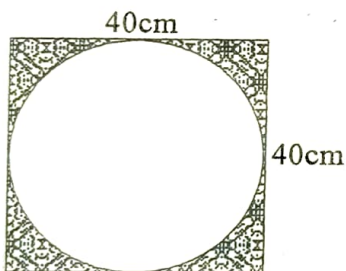5. What is the value of angle ACB in the figure below?



   A. 30⁰
   B. 110⁰
   C. 70⁰
   D. 50⁰

6. What is the value of;
   $$\sqrt{\frac{100-64}{16+9}}$$
   A. $\frac{2}{7}$
   B. $1\frac{1}{2}$
   C. $1\frac{11}{25}$
   D. $1\frac{1}{5}$

7. A motorists travelled a distance of 60km in 30min. What was his speed in km/h?
   A. 2
   B. 180
   C. 120
   D. 200

8. In 2006, a farmer harvested 1200 bags of maize. In 2007, the harvest increased by $12\frac{1}{2}\%$. How many bags were harvested in 2007?
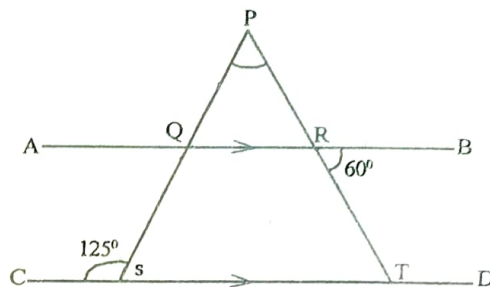   A. 1350
   B. 150
   C. 1500
   D. 1050

9. The mean mass of 31 pupils is 40kg. When the mass of the teacher is added, the mean becomes 41kg. What is the mass of the teacher?
   A. 61kg
   B. 72kg
   C. 78kg
   D. 59kg

10. The figure below shows a square of side 40cm. A circle is inscribed in the square. What is the shaded area?($\pi$ =3.14)



   A 344cm²
   B. 16600cm²
   C. 1256cm²
   D. 912cm²

11. The area of a trapezium is 104cm². The two parallel lines are 15cm and 11cm. What is the perpendicular distance between them?
    A. 10cm
    B. 4cm
    C. 12cm
    D. 8cm

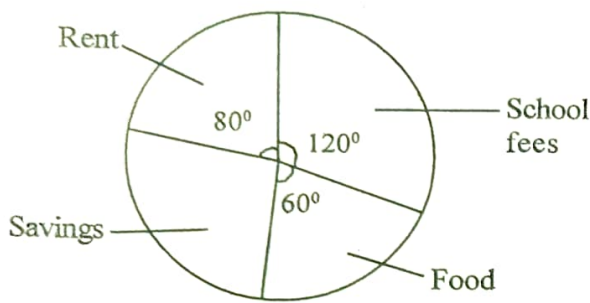12. In the figure below line AB is parallel to CD. Angle CSQ =125⁰ and angle BRT =60⁰.



    What is the size of angle QPR?
    A. 135⁰
    B. 55⁰
    C. 65⁰
    D. 60⁰

13. A wheel has a radius of 70cm. How many revolutions does it make to cover 8.8km?
    A. 4000
    B. 200
    C. 400
    D. 2000

14. A trader sold dress for sh.1750 making a loss of sh.250. What was the percentage loss?
    A. 25%
    B. $12\frac{1}{2}\%$
    C. 14.29%
    D. 15%

15. The diagonal of a rectangle is 15cm. If its length is 12cm, what is its perimeter?
    A. 42cm
    B. 54cm
    C. 48cm
    D. 46cm

16. The marked price of a refrigerator is sh. 20000. The hire purchase price is 25% more than the marked price. Akinyi bought it on hire purchase by paying deposit and nine equal monthly instalments of sh. 2000 each. How much was the deposit?
    A. Sh.2000
    B. Sh. 6000
    C. Sh 8000
    D. Sh.7000

17. What is the place value of digit 7 obtained after working $3.4175 \div 0.25$?
    A. Tenths
    B. Hundredths
    C. Tens
    D. Thousands

18. The pie chart below shows how Maina spent his salary.



If he spents sh.3600 on school fees, how much did he save?
    A. Sh.10800
    B. Sh.2400
    C. Sh. 3000
    D. Sh.2600

19. In a farm, the number of cows are 8 more than the goats. The number of sheep is half the total number of cows and goats. If the number of goats are g, which one of the following expressions represent the total number of the animals in the farm
    A. 3g +16
    B. 2g+8
    C. 3g - 12
    D. 3g + 12

20. A salelady earns a salary of 24000. She also earns a commission 5% on goods sold above sh. 40000. In one month she sold goods worth sh.320000. How much did she earn in total?
    A. Sh. 38000
    B. Sh. 16000
    C. Sh. 14000
    D. Sh. 40000

21. A school had 480 pupils in 2019. The ratio of boys to girls was 3:5. After the Covid 19 break, 90 girls left the school while 90 more boys joined. What is the new ratio of girls to boys?
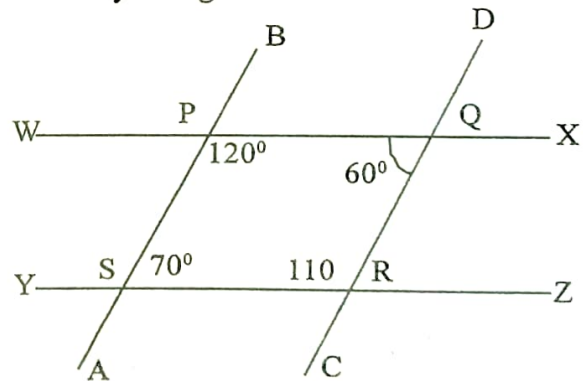    A. 7:9
    B. 11:9
    C. 9:11
    D. 9:7

22. The table below shows the packets of milk sold in a week from milk shop. The sale for Wednesday is not shown.

| Day | Mon | Tue | Wed | Thurs | Fri |
|-----|-----|-----|-----|-------|-----|
| Sale | 31 | 27 | ___ | 30 | 28 |

If the mean sale for the week was 29, how many more packets were sold on Monday than Wednesday?
    A. 2
    B. 3
    C. 4
    D. 1

23. Study the figure below.



Which one of the following statements is true about the figure?
    A. Line WX is parallel to YZ
    B. Line AB is parallel to CD
    C. PQRS is a rhombus
    D. Line AB is a transversal.

24. Eight men can paint a house in 20 days. If 3 men failed to turn up how many more days will the painting take?
   A. 32
   B. 12
   C. $12\frac{1}{2}$
   D. 8

25. Construct triangle WXY such that line WX= 4cm, WY= 5cm and angle XWY= 90°. Draw a circle touching points W, X, and Y. What is the radius of the circle?
   A. 3.8 cm
   B. 5cm
   C. 3.2cm
   D. 6.3 cm

26. **The table below shows arrival and departure timetable for a certain train from town P,Q,R,S and T.**

| Town | Arrival | Departure |
|------|---------|-----------|
| P | _____ | 7.17am |
| Q | 10.45am | 10.45am |
| R | 11.25pm | 1.25pm |
| S | 2.30pm | 3.55pm |
| T | 4.45pm | _____ |

How long did it take from town Q to town S?
   A. 8hrs 15 mins
   B. 4hrs 45min
   C. 6hrs
   D. 3hrs 45min

27. A cylindrical tanks with a diameter of 2.8m and a height of 5m is $\frac{2}{5}$ full. How many litres of water does it have?
   A. 30800
   B. 1232
   C. 12320
   D. 1848

28. What is the value of
   $$\frac{2xy^2 +2z}{z} ?$$
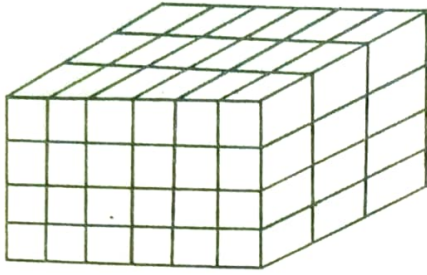   If x= 2, y = x +3 and z= y-1
   A. 102
   B. 36
   C. 23
   D. 27

29. A room measures 12m long 8m wide and 5m height. The walls were painted except the door and the windows. If the door and the windows occupy 48m². What was the area painted?
   A. 480m²
   B. 152m²
   C. 200m²
   D. 354m²

30. A trader sold an article for sh. 18000 making a loss of 10%. How much more should he have sold it to make a profit of 10%?
   A. Sh.22000
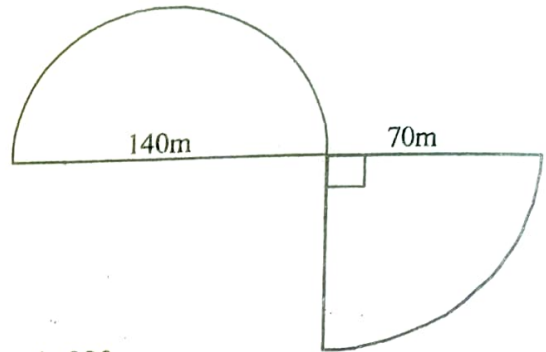   B. Sh. 4000
   C. Sh.20000
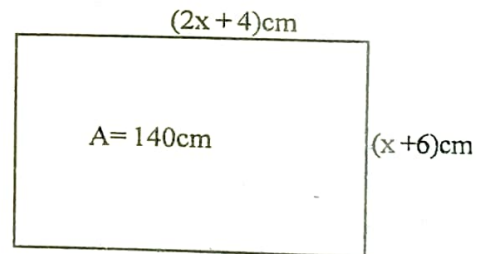   D. Sh. 6000

31. The stack below was dipped in paint.



How many cube were painted on two faces only?

A. 8

B. 18

C. 28

D. 24

32. A family consumes 500ml of milk daily. How many litres of milk will it consume in the second quarter of the year?

A. 46litres

B. 45litres

C. 45litres

D. 45.5litres.

33. What is the 3:5 expressed as a percentage?

A. 60%

B. $37\frac{1}{2}$%

C. 35%

D. 65%

34. Mzee Mwamba's farm is rectangular in shape with a length of 150m and a width of 80m. It was fenced using 3 strands of wire leaving a gap of 10m for the gate. What is the total length of wire used?

A. 690m

B. 1350 m

C. 1380m

D. 660m

35. The figure below shows Kiboro's piece of land. What is the perimeter of the piece of land?



A. 330m

B. 470m

C. 720m

D. 610m

36. A lorry contains 50cartons each carton contains 12 packets of salt. Each packets weighs 250grams. If the mass of an empty carton is 100g, what is the total load in the lorry in kilograms?

A. 155000kg

B. 150kg

C. 155kg

D. 180kg

37. The rectangle below has a perimeter of 140cm.



What is the area of the rectangle in cm²?

A. 816

B. 1144

C. 1000

D. 8924

38. The temperature of water was 14°c. It was heated at a rate of 5°c per minute for 6 mins. It was then allowed to cool at rate of 4°c per min for 3 mins. What is the new temperature of water?

A. 44

B. 32

C. 26

D. 22

39. Amolo bought a TV set at sh.28800 after being allowed a discount of 20%. How much was the discount?

A.sh.36000

B. Sh. 23,040

C. Sh. 5670

D. Sh.7200

40. What is the value of **x** in the equation below.

$$\frac{2(x+2)}{3} + \frac{x}{4} = 3$$

A. $1\frac{9}{11}$

B. $2\frac{2}{3}$

C. $1\frac{11}{20}$

D. $3\frac{1}{4}$

41. The table below shows inland postal charges for letters

| Mass | Charges |
| --- | --- |
| Upto 20g | 21.00 |
| over 20g- 50g | 25.00 |
| over 50g- 100g | 28.00 |
| over 100g- 250g | 42.00 |
| over 250g- 500g | 70.00 |
| over 500g- 1kg | 113.00 |
| over 1kg- 2kg | 160.00 |

Kinyanjui posted two letters weighing 225g each and another weighing 1.7kg. How much did he pay in total?

A. Sh.320

B. Sh. 244

C. Sh. 202

D. Sh.284

42. 50 electric poles were elected 10m apart along a straight path. What is the distance between the first and the last pole in metres

A. 490m

B. 600m

C. 5m

D. 600m

43. Karimi deposited sh.120000 in bank that paid simple interest at a rate of 8% p.a. She withdrew the money after 18 months. How much interest did she withdraw altogether?
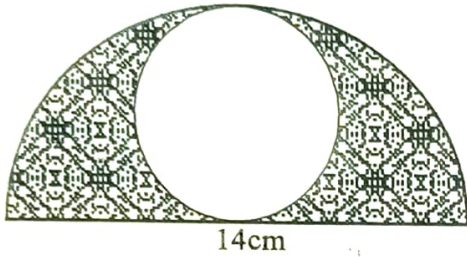
A. Sh.134,000

B. Sh. 14,400

C. Sh. 12,400

D. Sh.142,00

44. What is 30,000 decreases in the ratio 8:15?

A. 56250

B. 48000

C. 14000

D. 16,000

**45.** A pipe had a radius of 1.4cm and length of 1.5m. What is its total surface area?

A. 660cm²

B. 13.2cm²

C. 1320cm²

D. 6.6cm²

**46.** What is the area of the shaded part in the figure below in cm². $(\pi = {}^{22}/_7)$



14cm

A. 38.5          B. 77

C. 19.25          D. 42.5

**47.** What is 987768 rounded off to the nearest ten thousands.

A. 988000          B. 100000
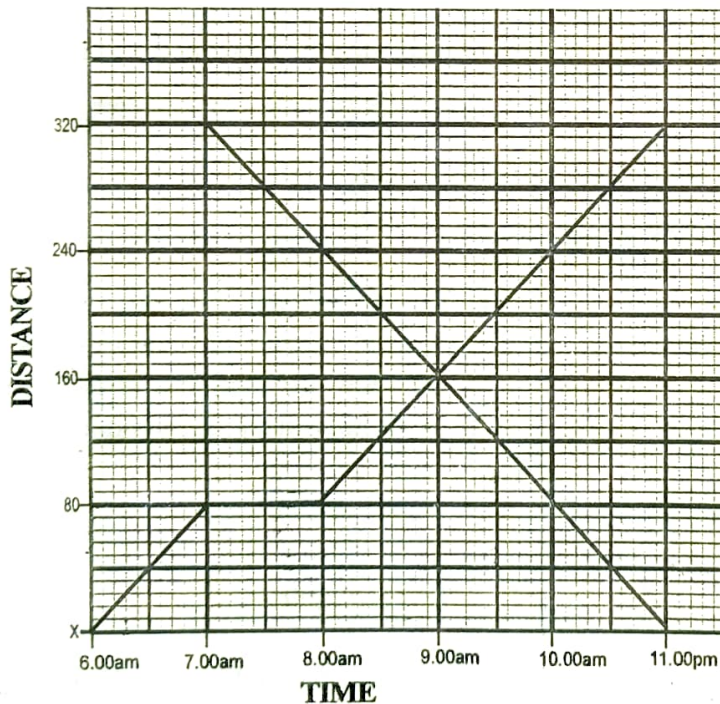
C. 1000000          D. 990000

**48.** What is the product of the faces and edges in a triangular prism?

A. 72          B. 30

C. 45          D. 60

**49.** What is the largest number that can divide 30, 45, and 75 without remainder?

A. 45          B. 30

C. 15          D. 450

**50.** <u>The graph below shows a journey of a motorists..</u>



How far apart were they at 10.00am ?

A. 160km          B. 240km          C. 100km          D. 80km