

**SIGNAL EXAMS 2022
NINTH K.C.P.E SIGNAL
MATHEMATICS**

Time: 2 hours

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 booklet.

HOW TO USE THE ANSWER SHEET

4. Use only an ordinary pencil.
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 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 of the questions 1 - 50 four answers are given. The answers are lettered A, B, C and D. In each case only **ONE** of the four answers is correct. Choose the correct answer.
10. On the answer sheet, the correct answer is to be shown by drawing a **dark line** inside the box in which the letter you have chosen is written.

Example:
In the question booklet:

11. What is the value of: $51616 \div 36$
- A. 146
 - B. 1046
 - C. 1406
 - D. 1460

The correct answer is C (1406)

On the answer sheet:

- 1 (A|B|C|D) 11 (A|B|C|D) 21 (A|B|C|D) 31 (A|B|C|D) 41 (A|B|C|D)

In the set of boxes numbered 11, the box with the letter C printed in it is marked.

11. Your **dark line** **MUST** be within the box.
12. For each question **ONLY ONE** box is to be marked in each set of four boxes.

This question paper consists of 8 printed pages

©Signal Publishers Limited 2022

Website: www.signalpublishers.com. Email: info@signalpublishers.com



SignalPublishers



@SignalPublishers

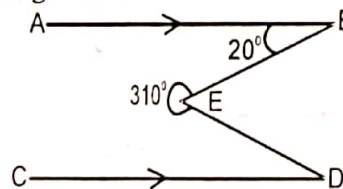
- What is five million five hundred and fifty thousand and fifty five and five hundredths written in symbols?
 - 5505055.05
 - 5550055.05
 - 5550555.05
 - 5550055.500
- Round off **999.9974** to the nearest hundredths.
 - 999.99
 - 999.997
 - 1000.00
 - 1000.99
- What is the value of;

$$\frac{6(36-24)+4 \times 6}{2 \times 2 \times 2} + 16?$$
 - 28
 - 14
 - 16
 - 24
- Three bells are set to ring at intervals of 15 minutes, 30 minutes and 45 minutes. If they rang together at 6:30, at what time had the rung together before?
 - 8:00am
 - 5:30am
 - 7:30am
 - 5:00am
- By how many times is the value of digit 5 greater the value of digit 4 in the number **2547219**?
 - 125
 - $12\frac{1}{2}$
 - 46000
 - 540000
- Kaloki bought the following items from a shop.
 - $3\frac{1}{2}$ kg sugar @ sh. 120
 - 2kg cooking oil @ sh. 150
 - 4 ice creams for sh. 20
 - A loaf of bread @ sh. 70
 - 2 litres of kerosene for sh. 105 per litre.

If he gave the shopkeeper sh. 1000 note, how much did he still owe the shopkeeper?

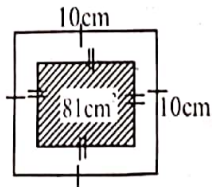
- Sh. 20
 - Sh. 40
 - Sh. 25
 - Sh. 65
- 0.2 of the pupils in a class went for a tour, 0.3 went for drama festival and 0.5 of the remainder were sent home for school fees. If 160 pupils remained in school, how many pupils are in the school altogether?
 - 600
 - 640
 - 720
 - 800

- In the figure below, line **AB** is parallel to line **CD**. Angle **ABE** = 20° and reflex angle **BED** = 310° . What is the value of angle **CDE**?



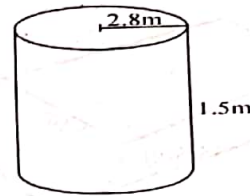
- 70°
 - 50°
 - 30°
 - 60°
- The height of a plant is 160cm. This height increases by 25% each month. What will be the height of the plant after 2 months?
 - 300cm
 - 200cm
 - 240cm
 - 250cm

10. The diagram below shows two squares. One square has an area of 81cm^2 and the other one has a length of 10cm . What is the width of the regular margin between the two squares?



- A. 2cm
 B. $\frac{1}{2}$ cm
 C. 1cm
 D. 9cm
11. Kirwa is 2 years older than Mike but 4 years younger than Dorris. Amina is 2 years older than Doris. If Amina is x years old, what is the sum of their ages?
 A. $(4x + 8)$ years
 B. $(4x - 12)$ years
 C. $(4x - 16)$ years
 D. $(4x + 16)$ years
12. $\frac{1}{2}$ of the chairs in church are painted white, $\frac{1}{8}$ are painted red while $\frac{1}{3}$ of the remainder are painted green. All the rest are painted black. If 12 chairs are painted green, how many chairs are painted black?
 A. 24
 B. 48
 C. 96
 D. 36
13. What is the value of, $\frac{9.6 \times 1.5 \times 2.7}{0.09 \times 1.6}$?
 A. 27
 B. 270
 C. 2.7
 D. 0.27

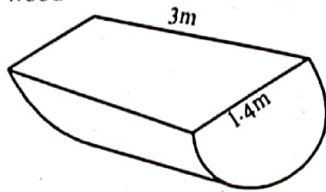
14. The tank below was full of water.



How many litres did it have?

- A. 36960L
 B. 36.96L
 C. 369.6L
 D. 3696L
15. Paul deposited sh. 25000 in a bank that offers simple interest at the rate of 8% p.a. What was the total amount of interest in his account after $2\frac{1}{2}$ years?
 A. Sh. 30000
 B. Sh. 4000
 C. Sh. 29000
 D. Sh. 5000
16. The mass of 6 boys was recorded as follows; 42kg, 45kg, 37kg, 36kg, 41kg, 52kg. What was the median mass?
 A. 52kg
 B. $36\frac{1}{2}$ kg
 C. $41\frac{1}{2}$ kg
 D. 44kg

17. The diagram below represents a piece of wood



Calculate its total surface area.

- A. 12.34m^2
 B. 11.88m^2
 C. 12.32m^2
 D. 13.86m^2
18. Ngotho had 8 dairy cows. Due to increase in the price of milk, he bought 4 more cows. What was the ratio increase in the number of cows?
 A. 2:3
 B. 3:2
 C. 1:2
 D. 2:1
19. On a map whose scale is 1:30000, a farm is represented by a square whose area is 4cm^2 . What is the actual area of the farm in hectares?
 A. 12ha
 B. 16ha
 C. 24ha
 D. 36ha

20. Simplify; $\frac{4(mp + pt) + 2(mp - pt)}{2(mp + pt)}$

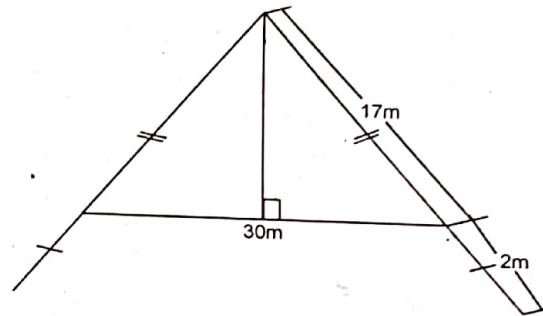
- A. $\frac{6mp + 24pt}{2mp + 2pt}$
 B. $\frac{mp + pt}{mp + pt}$
 C. $\frac{3mp + pt}{mp + pt}$
 D. $\frac{6mp + 4pt}{2mp + 2pt}$

21. The following are properties of a certain quadrilateral.
 (i) Diagonals bisect each other.
 (ii) Opposite sides are equal.
 (iii) Some angles are equal.
 The quadrilateral described above is
 A. parallelogram
 B. rhombus
 C. square
 D. rectangle

22. A trader bought a table for sh. 5100 after a discount of 15%. How much less would he have paid had he been given a discount of 20%?
 A. Sh. 4800
 B. Sh. 300
 C. Sh. 6000
 D. Sh. 900

23. A bucket was half full of water. When 3 litres were used it became $\frac{1}{3}$ full. What was the capacity of the bucket when full?
 A. 6 litres
 B. 12litres
 C. 15litres
 D. 18litres

24. The figure below represents a simple structure of a roofing beam.



What is the total length of timber used to construct the roofing beam?

- A. 76m
 B. 68m
 C. 84m
 D. 72m
25. A lorry travelling at a speed of 72km/hr took 4 seconds to cross a bridge. What is the length of the bridge?
 A. 18m
 B. 288m
 C. 80m
 D. 144m

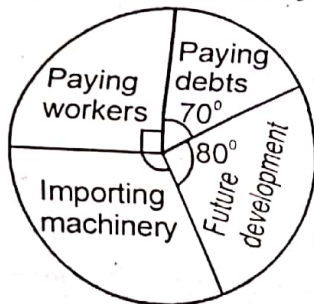
26. The hire purchase price of a laptop is sh. 30000. Bidli paid a deposit of sh. 10200 and the rest in equal monthly installments for $1\frac{1}{2}$ years. How much was each installment?
 A. Sh. 1300
 B. Sh. 1250
 C. Sh. 1100
 D. Sh. 1200
27. 36 workers were hired to construct a bridge in 6 months. After working for 2 months, 12 more workers were added. How long did the bridge take to be completed?
 A. 4 months
 B. 2 months
 C. 3 months
 D. 5 months
28. Kimani's mean mark in 5 subjects is 72%. In four of the subjects he scored 68%, 86%, 72%, and 64%. What was the score in the fifth subject?
 A. 74%
 B. 76%
 C. 68%
 D. 70%
29. Construct triangle MNP where line MN = 6.5cm, line NP = 5cm and angle MNP = 140°. Draw a circle touching its edges. Measure its diameter.
 A. 1.1cm
 B. 8.4cm
 C. 2.2cm
 D. 16.8cm
30. A watch loses 5 seconds every hour. It was set right on Tuesday at noon. What time will it show the following Tuesday when the correct time is noon?
 A. 11:46pm
 B. 11:46am
 C. 12:14 am
 D. 12:14pm
31. What is the value of;

$$\frac{a(b-c)}{ac} + \frac{c^2(a+b)}{bc}$$
 if $a = 4$, $b = 2a$ and $c = \frac{1}{4}b$.
 A. 12
 B. 9
 C. 6
 D. 7
32. Which of the following statements is not correct?
 A. $\frac{2}{3} = 0.66$
 B. 3:5 = 60%
 C. $\frac{4}{9} > 0.44$
 D. 1.11 < 11.1
33. A wheel with a radius of 28cm rolled and covered a distance of 7.04km. How many revolutions did it make?
 A. 2000
 B. 3000
 C. 4000
 D. 5000
34. The table below shows a plane time table from town A to town F.
- | Town | Arrival | Departure |
|------|---------|-----------|
| A | — | 0230h |
| B | 0315h | 0340h |
| C | 0520h | 0540h |
| D | 0650h | 0730h |
| E | 1015h | 1040h |
| F | 1220h | 1400h |
- How long does the plane take to travel from town B to town E?
 A. 6hrs 35min
 B. 7hours
 C. 7hrs 15min
 D. 7hrs 30min

35. A salesman is paid a basic salary of sh. 14000 and a commission of $2\frac{1}{2}\%$ on all goods sold above sh. 100000. In one month he earned a total of sh. 20000. What was the value of goods sold that month?
- A. Sh. 240000
B. Sh. 340000
C. Sh. 250000
D. Sh. 300000

36. The perimeter of an isosceles triangle is 100cm. Two of its sides measure 48cm and 26cm. What is its area?
- A. 1248cm^2
B. 624cm^2
C. 480cm^2
D. 240cm^2

37. The pie chart below shows how a company spent its profit of sh. 90000.



How much money was used on importing machinery?

- A. Sh. 30000
B. Sh. 36000
C. Sh. 22500
D. Sh. 24000
38. Construct rectangle **ABCD** where line **AB** = 8cm and line **BC** = 6cm. Join point **A** to **C** and **B** to **D** such that the diagonals meet at point **A**. Measure line **AB**.
- A. 10cm
B. 5cm
C. 8cm
D. 4cm

39. Njogu and Njuki shared some fruits in the ratio $\frac{1}{3} : \frac{1}{4}$. If Njogu got 12 more fruits than Njuki, how many fruits were there altogether?
- A. 144
B. 72
C. 96
D. 84

40. What is the value of; $173.052 \div 3.6$?
- A. 48.70
B. 4.87
C. 48.07
D. 4.087

41. An aeroplane flew at a speed of 200m/s. What distance did it cover between noon and 3:00pm?
- A. 2160km
B. 1440km
C. 1800km
D. 2880km

42. By selling a sewing machine for sh. 18000 a trader makes a 10% loss. For how much should he sell it to make 25% profit?
- A. Sh. 2200
B. Sh. 25000
C. Sh. 24000
D. Sh. 20000

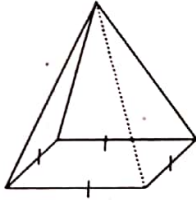
43. What is the value of; $\frac{7}{8} \times \frac{2}{3}$ of $\frac{3}{8} \div \frac{2}{3} + \frac{1}{2}$?
- A. $\frac{53}{64}$
B. $2\frac{1}{4}$
C. $1\frac{1}{2}$
D. $1\frac{3}{4}$

44. What is the value of x in;

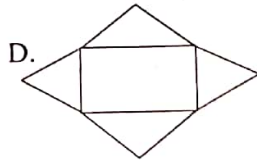
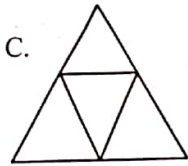
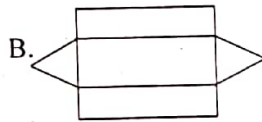
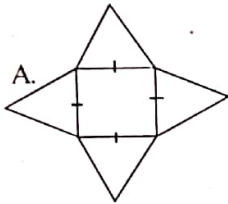
$$\frac{x-1}{3} + \frac{x+2}{2} = 9$$

- A. 3
- B. 5
- C. 10
- D. 12

45. The solid below was opened to form a net.



Which net was obtained?



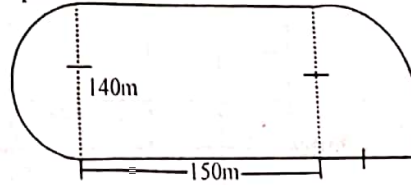
46. Which of the following numbers is divisible by 11?

- A. 95712
- B. 59664
- C. 53811
- D. 63370

47. A meeting started at 10:30am. It took 4 hours 50 minutes. At what time did the meeting end?

- A. 1530hrs
- B. 1520hrs
- C. 1430hrs
- D. 1420hrs

48. The figure below represents kimani's piece of land.



What is the area of the piece of land in hectares?

- A. 6.16ha
- B. 5.29ha
- C. 4.62ha
- D. 4.41ha

49. The table below shows the rate of sending money order.

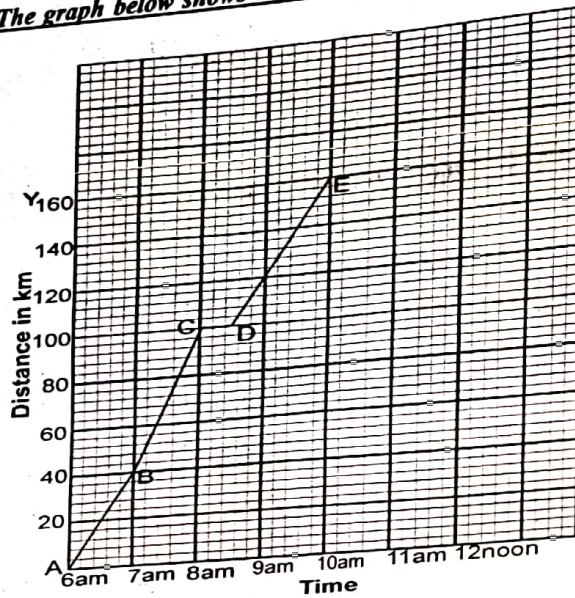
Value order (sh)	Ordinary Commission(sh)	Express Commission(sh)
Upto 500	25	45
Over 500 - 1000	60	110
Over 1000 - 2000	95	170
Over 2000 - 5000	140	260
Over 5000 - 10000	195	350
Over 10000 - 20000	250	420

Wambugu sent an ordinary money order worth sh.6400 and an express money order worth sh.14000. How much did he pay at the post office?

- A. Sh. 21015
- B. Sh. 20400
- C. Sh. 615
- D. Sh. 23475

35. A cat

50. The graph below shows a traveller's journey through different towns.



Between which two towns was his speed the highest?

- A. A and B
- B. B and C
- C. C and D
- D. D and E

NB: For a comprehensive revision in Mathematics get yourself a copy of 'SIGNAL K.C.P.E REVISION MATHEMATICS' from Signal Publishers. AVAILABLE AT BOOKSHOPS COUNTRYWIDE.