



THE SIPRO EDUCATIONAL SERVICES LTD

SPECIAL SET EXAMINER'S INTERVIEW 2023

SUBJECT: MATHEMATICS

Time Allowed : 1Hr 30Mins.

Teacher's name : _____

Contact(s) : _____

Instructions:

✓ *Attempt all questions.*

✓ *All telephones MUST be switched off.*

SECTION A 40 MARKS

Questions 1 to 20 carry two marks each

1. Work out $0.2 - 0.002$

2. Given that set $P = \{\text{Prime numbers between 80 and 100}\}$

Find $n(P)$

3. Express 175_{eight} in quinary base.

4. Use a dial to work out $1 \div 3$ (finite 4)

5. Two numbers are in the ratio of 3:5, their lowest common multiple is 90, find G.C.F.

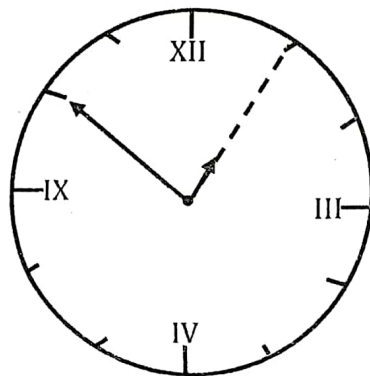
6. Evaluate; $\frac{2^4 + 2^2 + 2^3}{2^2 + 2^0 + 2^1}$

7. Simplify: $5 - 2(3p - 2k) + 4$.

8. How many 200g packets of curry powder can be obtained from twenty seven kilogram packs of curry powder?

14. A family of 15 people has enough money to last them through two weeks. How much longer would the money last if five people in the family went for a visit?

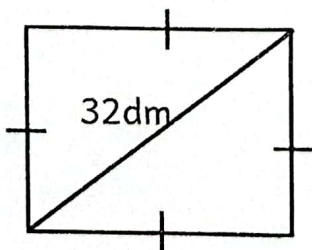
15. Study the clock face below and express the afternoon time shown in the 24 hour notation.



16. Solve for n : $2^n + 2^n = 32$

$$2^n + 2^n = 32$$

17. Work out the Area of the figure below.



18. What angle is $\frac{4}{5}$ of its supplement?

19. An aeroplane covers a certain distance at a speed of 240km/h in 5 hours. In order to cover the same distance in one hour 40 minutes, at what speed must it fly?

20. The average mass of a class of 40 children is 40kg. The average mass of the 15 girls in the class is 35kg. What is the average mass of the boys?

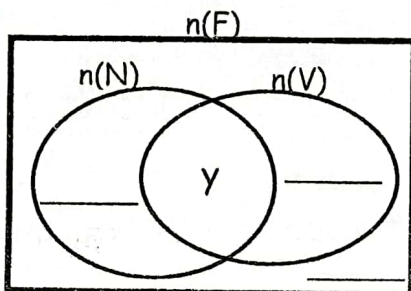
SECTION (60 Marks)

Answer all questions in this section.

Marks for each part of the question are indicated in the brackets.

21. In a club of 40 members, all play football (F), seven members play football only, 15 play volleyball(V), 25 play Netball (N), y play all the three games.

(a) Represent the above information on the venn diagram.



(03 Marks)

b) Find the value of y .

(02 Marks)

22. The table below shows the rate at which a bank buys and sells dollars and Kenya shillings.

Currency	Buying	Selling
US dollars	Ug sh 3670	Ug sh 3700
Kenya shillings (Ksh)	Ug sh 32	Ug sh 35

a) How many Kenya shillings did James get from Ugsh.2,170,525?

(02 Marks)

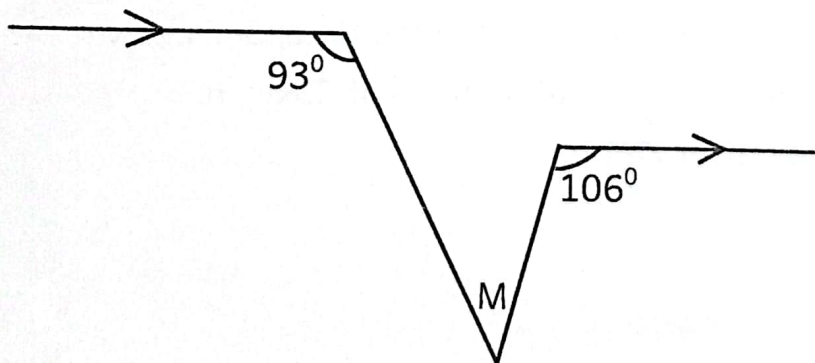
b) Mark bought a T.V screen worth K sh. 578,125. How much in US dollars did he pay for the screen?

(03 Marks)

23.a) A regular polygon has an interior angle sum of 4680° . How many sides has the polygon?

(02 Marks)

b) Study the diagram below and find the value of m .



(03 Marks)

24. Opio spent $\frac{2}{5}$ of his income on food, on car expenses, $\frac{2}{3}$ of the remainder on School fees and was left with sh. 240,000. Calculate Opio's income.

(4 Marks)

25. John bought 180pens. Some pens were black and others were red. The cost of a black pen was sh.450, while every red pen costs sh.550. John paid sh.88,000 for all the pens. How many more black pens did he buy?

(05 Marks)

26. Two towns A and B are 520km apart. Jemba left town A at 7.30am travelling towards town B at 70km/h. At the same time, Sempebwa travelled from town B towards town A at a speed of 60km/h.
- a) How far apart were they after $2\frac{1}{2}$ hours?

(03 Marks)

b) At what time did they meet each other?

(02 Marks)

27. A bicycle wheel makes 10,000 revolutions to cover a distance of 17.6 km.

a) Calculate the diameter of the wheel in centimetres.

(02 Marks)

b) Work out the area of the wheel.

(02 Marks)

28. The shopkeeper sold 69 cartons of exercise books. Each carton had twelve dozen books. How many books were sold?

(02 Marks)

b) If each dozen was sold at sh.8500, How much did the shopkeeper get from the sale of two thirds of cartons?

(03 Marks)

29. Three children contributed money to buy a pizza. Tom contributed sh.8000, John contributed sh.10,000 while Mark contributed sh.6000. They agreed to share the pizza according to their contribution. Use a pie chart to show each child's share.

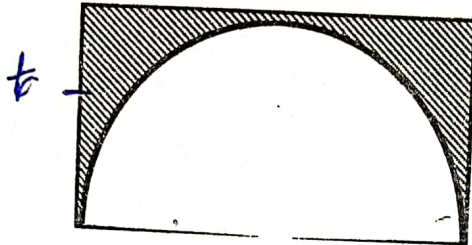
(05 Marks)

30. A teacher of Top class at Kasana demonstration school keeps pencils for her class. On Monday of last week, she tied fifteen at once but 10 remained. On Tuesday, she tied thirteen at once but 7 remained. On Wednesday, she tied eleven at once but 8 remained. What is the least number of children in her class?

(04 Marks)

31. The figure below shows a semi-circle enclosed in a rectangle. The area of the shaded region is 336 dm^2 . Find the diameter of the semi-circle.

Take π as $3\frac{1}{7}$



$$L \times w - \frac{1}{2} \pi r^2 = 336$$

$$2r \times w - \frac{1}{2} \pi r^2 = 336$$

32.a) A box of nails weighs 1.35 kg . Each nail weighs 2.4 g and the mass of the box alone is 42 g . Find the number of nails in the box. (06 Marks)

b) Convert 2 km^2 into hectares.

(04 Marks)

(02 Marks)