MAKINDYE JUNIOR SCHOOL

PRIMARY SIX TEST PAPERS

MATHEMATICS – SET CONCEPTS

2024

Name ……

Stream……

Unit name……

READ THE FOLLOWING INSTRUCTIONS CAREFULLY BEFORE YOU OPEN THIS BOOKLET

1. This paper is made of 2 sections. **A** and B.
2. Section **A** is made of 20 questions (40) responses and section **B** is made of 12 questions (60) responses.
3. Answers and any kind of working in both sections must be written in the spaces provided
4. Answers must be written in blue or black point ink pen only
5. All diagrams must be drawn using a pencil
6. Unnecessary closings or untidy work may lead to loss of marks
7. Do not write anything in the box "**FOR EXAMINER`S USE ONLY.**"

FOR EXERMINER`S USE ONLY		
QN	MARKS	REMARK
1 – 10		
11 –20		
21-24		
25 -28		
29 -32		
TOTAL		

Approved by;…….

QC

EXAMINER`S COMMENT

SECTION A

(20 questions 40 marks)

1. Workout**:** $\mathbf{2^3}$

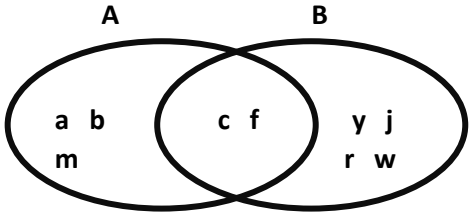
2. Find the value of $2^y = 64$

3. Given that **Set T** = {The first 3 composite numbers}, list all the possible proper subsets that can be formed from **Set T.**

4. Draw a Venn diagram to show that "**All Cows(C)** are **Animals(A).**

5. Find the number of elements in Set G if **n(G) = 5**

6. Given the Venn diagram below use it to find the sum of elements in $(\mathbf{A \cap B)^1}$ and **AUB.**



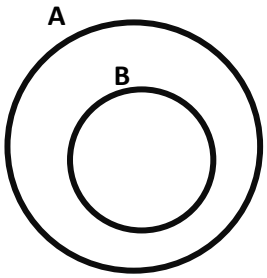
7. If **n(R)** = 16, **n(ε)** = 30 and **n(S) only** = 10, find the **n(RUS)^1.**

8. In a class of **20** boys and **30** girls, **32** pupils like Table Tennis (**T**), **20** like only Football (**F**) and 2 pupils like both of the mentioned games. Find the probability of choosing a pupil at random from the class who likes **Table tennis** only.

9. Which number was prime factorized to form; (**2 x 2 x 2 x 2)?**

10. Given that **n(A) = n(B)** and Set A is not equal to Set B. If Set B is a set of the first 4 even numbers, list set **A.**

11. Describe the shaded region on the Venn diagram below;



12. Given that Set R has 128 subsets, find the number of elements in Set R.

13. 3 sets M and N and O are related in such a way that;
M is equivalent to O
O is equal to N
Set N is not equal to Set N

If set **N** = {a, b, c, d, e}, Form Set M

14. Find the probability of an even number appearing on top when a dice is tossed once.

15. The class manager of a certain class at Ggulu Progressive school distributed the 45 candidates according to their abilities. 22 could play Football (F) while 15 could go to Rugby and the remaining 5 could go to neither of the mentioned games. Find the number of candidates who play both Football and Rugbay

16. Workout; (2^6) + 1

17. Find the probability of picking an even number from a set of composite numbers less than 15

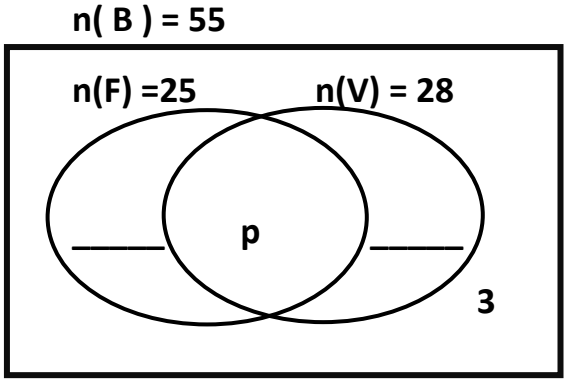
18. During a summit, 56 guests took Fanta (F) and 44 guests took Mirinda (M). If 4 guests took both Fanta and Mirinda and 2 took neither of the 2 mentioned drinks, find the total number of guests who attended the summit.

19. Form and list any one pair of equivalent sets

20. Paul is a class monitor of Primary six at a certain school. He organized all members in the class into 3groups of 17 pupils each such that each group had 15 people who liked mathematics and 13 people who liked Science. All the members in each group liked English and x people liked both Science and Mathematics.
Find the number of pupils who liked both Mathematics and Science in the whole class.

SECTION B
Answer all questions in this section

21. In a class of 55 Boys(B), 25 play Football (F) and 28 play Volleyball (V) while 3 play neither of the mentioned types of games.
Use the information above to complete the Venn diagram below;



b) Find the probability of choosing a boy at random who plays both Football and Volleyball

c) How many boys play only one type of game.

22a) Solve for n in; $(2^n) - 1 = 63$

b) Given that Set G is a set of odd numbers between 7 and 14, find the number of subsets that can be got from set G

23) 3 sets A, B and C are related in such a way that Set A is equivalent to Set B, B=C and C is not equal to A

a) Use equivalent or non-equivalent to describe the relationship between set C and A

b) If Set A = {a, b, c, d, e}, find n(C) + 6

c) Form any one pair of equivalent sets

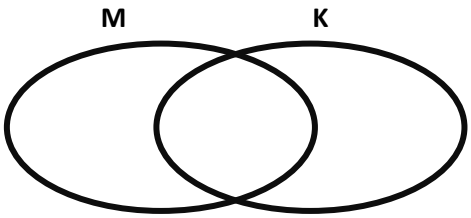
24. If $n(P)^1 = 8$ and $n(PUQ)^1 = 5$.

a) Find n(Q) only

b) Find $n(\varepsilon)$ if n(P) =7

c) Find n(P-Q) If $n(P \cap Q) = 2$

25. Given that Set M = {even numbers less than 12} and Set K = {Composite numbers less than 15}, represent the 2 sets on a Venn diagram.



b) Find n(M-K)[1]

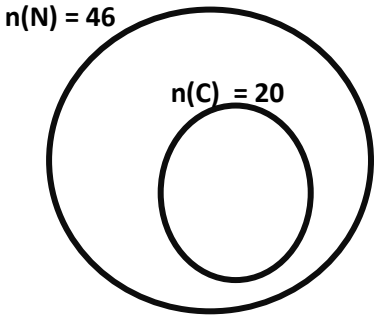
26. a) Draw a Venn diagram to show that "**All Cows are Animals"**

b) Find the number of proper subsets in a set of 1 element

c) complete the table below;

No. of elements	**No. of proper subsets**	**No. of subsets**
6	63	_____
_____	127	_____
_____	_____	512

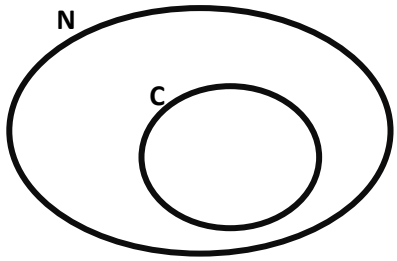
27. The Venn diagram below shows that all girls in a P.6 class at MJS play Netball(N) and 20 of them play both Netball and Chess (c).



If the number of those who don't like Chess in the class is equal to the number of those who like Scrabble, find the number of those who like Scrabble.

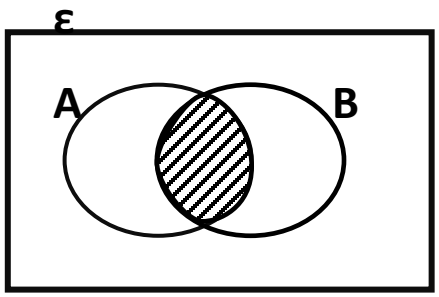
b) Find the Probability of choosing a girl at random who likes both Scrabble and Netball.

c) Shade (N∩C) on the Venn diagram below.



In questions 28 to 32, choose and circle on the most correct objective.

28. a) Given the Venn diagram below, describe the un-shaded region.



A. $(A \cup B)^1$
B. $(A \cap B)^1$
C. $(A^1 \cap B)$
D. $(A^1 \cup B^1)$

b) Circle the alternative with the most correct mathematical fact/ statement.

A. $n(\varepsilon) = n(AUB) + n(AUB)^1$
B. $n(\varepsilon) = n(AUB) + n(A^1UB)$
C. $n(\varepsilon) = n(A-B) + n(A \cap B) + n(B-A)$
D. $n(\varepsilon) = n(A) + n(B-A)^1$

29. Choose the most correct fact about "**Equal and equivalent sets"**

A. All equal sets are also equivalent sets.

B. All sets are also equal sets.

C. Some equal sets are non-equivalent sets.

D. Some non-equivalent sets are equal sets.

b) If Set **G=M** and **M = {2,3,5,7,11}**

Name Set **G**

A. Set G is a set of prime numbers between 1 and 12.
B. Set G is a set of the first 5 odd numbers

C. Set G is a set of all prime numbers less than 12
D. Set G is a set of consecutive whole numbers

30. The symbol for subsets symbolizes that;

A. Proper subsets have one more subset than subsets.

B. Subsets also include the mother /super set while proper subsets don't include the mother set.

C. The empty set is excluded from proper subsets

D. The smallest number of subsets in set theory is 1

b) If Set G has 32 subsets, find the number of elements in set G.

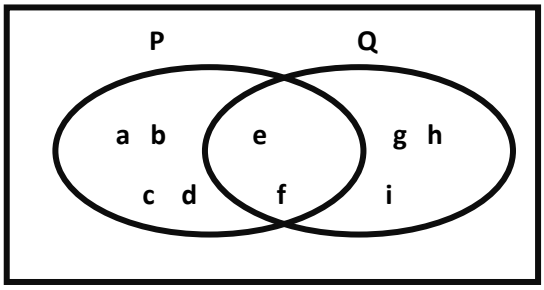
A. 3

B. 2

C. 0

D. 5

31. a) Given the Venn diagram below;



Find (P ∩ Q)

A. (P ∩Q) = {j,k}
B. P ∩Q = {e,f}
C. P ∩Q = {a,b,c,d}
D. None the above is correct

b) Find $n(P-Q)^1$

A. $n(P-Q) = 2+6$

B. $n(P-Q)^1 = 7$

C. $n(P-Q)^1 = 4+2+2$

D. $n(P-Q)^1 = 9$

32. a) All elements of set **Y** are in set **T.** If **YUT = {p,q,r,s,t}** and **(YUT)** is equal to **Y∩T** , Find **n(Y)**

A. $n(Y) = 5 + 5$

B. $n(Y) = 5$

C. $n(Y) = 6$

D. $n(Y) = 3$

b) Find n(T)only

A. n(T) only = 5

B. n(T) only = 10

C. n(T) only = 0

D. n(T) only = 2