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LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

VHEMBE WEST DISTRICT

Liberty through knowledge

GRADE 9

MATHEMATICS

2024 TERM 1

COMMON TEST

MARKS: 50

TIME: 1 HOUR

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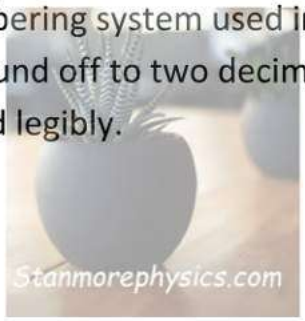
INSTRUCTIONS AND INFORMATION:

Read the following instructions carefully before answering the questions.

1. This question paper consists of 4 questions.
2. Answer all questions on this paper.
3. Show all your calculations, answers alone will not necessarily earn full marks.
4. You may use an approved scientific calculator (Non-programmed and Non-graphical).
5. Follow the numbering system used in this question paper.
6. If necessary, round off to two decimal places unless otherwise stated.
7. Write neatly and legibly.



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Question1	MULTIPLE CHOICE QUESTIONS	[5]
1	Choose the letter with the correct answer.	
1.1	Which of the following is a natural number?	(1)
	A) $\sqrt{\frac{9}{3}}$ B) 25 C) 0 D) π	
1.2	Calculate: $2+(-3)+(-5)$	(1)
	A) -6 B) -7 C) 6 D) 7	
1.3	Simplifying: $(\frac{-8}{4})^2-(-4)-\sqrt{64}$:	(1)
	A) 0 B) 2 C) 4 D) -10	
1.4	Which number is equal to a^0 ?	
	A) a B) 0 C) 1 D) -1	(1)
1.5	The general term of the sequence $1; 4; 7$ is	(1)
	A) $Tn=3n+2$ B) $Tn=-3n+2$ C) $Tn=3n-2$ D) $Tn=-3n-2$	

Question 2	WHOLE NUMBERS	[11]
2.1	Find the LCM of 36 and 63	(3)
2.2	The table below shows the number of men painting a house and the time in hours it takes to complete painting.	

Number of men	1	4	b
Time in hours	4	a	2

2.2.1.	Determine the values of a and b.	(2)
2.2.2	Is the above table an example of a direct or indirect proportion?	(1)
2.3	A car is travelling at $100km/h$. How long will it take to travel $300km$?	(2)
2.4	Carol invests $R18\,000$ for $6years$ at rate of 15% p. a compounded annually. What will be the total value of Carol's investment after $6years$?	(3)

Question 3	INTEGERS	[11]
3.	Simplify:	
3.1	$2a(-3a)-(-5a)$	(2)
3.2	$\frac{-20d^5}{4d^2}$	(2)
3.3	$\frac{2a(4b^2)+3b(-2ab)}{2ab^2}$	(3)
3.4	$-3x^2(-2y)^3$	(2)
3.5	$-\sqrt[3]{64}-\sqrt{25}$	(2)

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Question 4	**EXPONENTS**	**[12]**
4.1	Simplify:	
4.1.1	$3(2y^3)^2$	(2)
4.1.2	$\frac{6a^3b^5}{3a^2b}$	(2)
4.2	Calculate:	
4.2.1	$(2 \times 5)^2$	(2)
4.2.2	$3^4 \div 3^2$	(2)
4.2.3	$2^3 + 2^{-3}$	(2)
4.2.4	$(2+3)^{-2}$	(2)
Question 5	**NUMERIC AND GEOMETRIC PATTERNS**	**[11]**
5.1	Study the pattern made of matchsticks and answer the questions that follow:	
5.1.1	Draw pattern number 4.	(1)
5.1.2	Describe the pattern in your own words.	(1)
5.1.3	Write down the general term of the sequence in the form of $Tn =$	(2)
5.1.4	Without drawing the figures, determine the number of matchsticks needed to build the 17th pattern.	(2)
5.2.	The rule for finding the output values on the table below is : $Tn = -\frac{1}{2}n + 3$ Complete the table and write down the missing values	(5)

n	-2	0	4	d	8
Tn	a	b	c	0	e

TOTAL : 50 MARKS

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GRADE 9

MATHEMATICS

2024 TERM 1

COMMON TEST MEMORANDUM

MARKS: 50

This memorandum consists of 4 pages including the cover page.
This is a Marking guideline, credit full marks wherein learners have used different but sound Mathematical strategies to solve the problems.

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Question1	MULTIPLE CHOICE	[5]
1.1	B ✓	(1)
1.2	A ✓	(1)
1.3	A ✓	(1)
1.4	C ✓	(1)
1.5	B ✓	(1)
Question 2	**WHOLE NUMBERS AND INTEGERS**	**[11]**
2.1		(3)

2	36
2	18
3	9
3	3
	1

3	63
3	21
7	7
	1

$36 = 2^2 \times 3^2$ ✓
$63 = 3^2 \times 7$ ✓
LCM of 36 and 63 $= 2^2 \times 3^2 \times 7$
$= 252$ ✓

2.2		
2.2.1	$a = 3\ hours$ ✓ $b = 7\ men$ ✓	(2)
2.2.2	Indirect proportion ✓	(1)
2.3	$t = \frac{d}{s}$ $t = \frac{300km}{100km/h}$ ✓ $t = 3h$ ✓	(2)
2.4	$A = P(1+i)^n$ ✓ $= 18000(1+0{,}15)^6$ ✓ $= R41\,635{,}09$ ✓	(3)
Question 3	**INTEGERS**	**[11]**
3.	Simplify	
3.1	$2a(-3a) - (-5a)$ $-6a^2 + 5a$ ✓✓	(2)

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3.2	$\frac{-20d^5}{4d^2}$ $-5d^{5-2}$ ✓ $=-5d^3$ ✓	(2)
3.3	$\frac{2a(4b^2)+3b(-2ab)}{2ab^2}$ $=\frac{8ab^2-6ab^2}{2ab^2}$ ✓ $=\frac{2ab^2}{2ab^2}$ ✓ $=1$ ✓	(3)
3.4	$-3x^2(-2y)^3$ $=-3x^2(-8y^3)$ ✓ $=24x^2y^3$ ✓	(2)
3.5	$-\sqrt[3]{64}-\sqrt{25}$ $=-4-5$ ✓ $=-9$ ✓	(2)
Question 4	**EXPONENTS**	**[12]**
4.1		
4.1.1	$3(2y^3)^2$ $=3(4y^6)$ ✓ $=12y^6$ ✓	(2)
4.1.2	$\frac{6a^3b^5}{3a^2b}$ $=2a^{3-2}b^{5-1}$ ✓ $=2ab^4$ ✓	(2)
4.2		
4.2.1	$(2\times5)^2$ $=(10)^2$ ✓ $=100$ ✓	(2)
4.2.2	$=\frac{3^4}{3^2}$ $=3^{4-2}$ ✓ $=3^2$ $=9$ ✓	(2)
4.2.3	2^3+2^{-3} $=8+\frac{1}{2^3}$ ✓ $=8+\frac{1}{8}$ $=8\frac{1}{8}$ ✓	(2)

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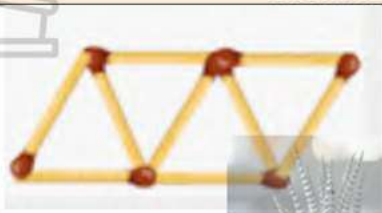
4.2.4	$(2+3)^{-2}$ $=(5)^{-2}$ ✓ $=\frac{1}{5^2}$ $=\frac{1}{25}$ ✓	(2)
Question 5	**NUMERIC AND GEOMETRIC PATTERNS**	**[11]**
5.1.1	 ✓	(1)
5.1.2	Add two matchsticks to the previous pattern. ✓	(1)
5.1.3	$Tn = 2n$✓$+ 1$✓	(2)
5.1.4	$Tn = 2(17) + 1$✓ $= 35$✓	(2)
5.2	a= 4✓ b= 3✓ c= 1✓ d= 6✓ e= -1✓	(5)
	TOTAL 50 MARKS	

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