EXAM-STYLE CLASS TEST

MARKS	DURATION	QUESTIONS
36	55 minutes	3

Name: ..... Class: .....

Date: .....

MARK ____ / 36

INSTRUCTIONS AND INFORMATION

1. Answer **ALL** the questions in this question paper.
2. Answer QUESTION 1 by **circling** the letter (A–D) in the answer grid at the end of that section.
3. Show **ALL** calculations clearly.
4. Show all units where applicable.
5. Number the answers correctly according to the numbering system used in this question paper.
6. A non-programmable calculator may be used, unless stated otherwise.
7. Write neatly and legibly.

QUESTION 1 [10 MARKS]

Four options are given as possible answers to the following questions. Choose the correct answer and circle the letter (A–D) in the grid at the end of this section. If you want to change your choice, put a cross through the wrong letter and circle your new choice.

1.1 $\log_2 8 = \ldots$ (1)

A) 3 **B)** 2
C) 4 **D)** 16

1.2 $\log 100 = \ldots$ (1)

A) 100 **B)** 2
C) 1 000 **D)** 10

1.3 The inverse of $y = 2^x$ is ... (1)

A) $y = \log_2 x$ **B)** $y = 2^{-x}$
C) $y = x^2$ **D)** $y = \log_x 2$

1.4 The graph of $y = \log_2 x$ passes through ... (1)

A) $(0\ ;\ 1)$ **B)** $(1\ ;\ 0)$
C) $(2\ ;\ 0)$ **D)** $(0\ ;\ 2)$

1.5 The graph of $y = \log_{\frac{1}{2}} x$ ... (1)

A) increases from left to right **B)** decreases from left to right
C) is a straight line **D)** is defined for $x < 0$

1.6 If $\log_3 x = 4$, then $x = \ldots$ (1)

A) 1,32 **B)** 12
C) 81 **D)** 64

1.7 $\log 1 = \ldots$ (1)

A) 10 **B)** undefined

C) 0 **D)** 1

1.8 $\log(-5)$ is ... (1)

A) 5 **B)** undefined

C) 0 **D)** $-\log 5$

1.9 R5 000 grows to R10 000 at 8% p.a. compounded annually. The number of years n is given by ... (1)

A) $n = \log_{1,08} 2$ **B)** $n = \log_2 1{,}08$

C) $n = 2 \div 1{,}08$ **D)** $n = 1{,}08^2$

1.10 Solve for x, correct to TWO decimal places: $2^x = 20$ (1)

A) 10 **B)** $0{,}30$

C) $1{,}30$ **D)** $4{,}32$

ANSWER GRID — CIRCLE YOUR ANSWERS FOR QUESTION 1

1.1	A	B	C	D
1.2	A	B	C	D
1.3	A	B	C	D
1.4	A	B	C	D
1.5	A	B	C	D
1.6	A	B	C	D
1.7	A	B	C	D
1.8	A	B	C	D
1.9	A	B	C	D
1.10	A	B	C	D

QUESTION 2 [13 MARKS]

Solve for x. Show ALL your working.

2.1 R5 000 is invested at 9% p.a. compounded annually. Solve $5\,000(1{,}09)^n = 12\,000$ to find how long it takes to grow to R12 000, correct to TWO decimal places, and interpret your answer. (6)

2.2 $3^x = 20$, correct to TWO decimal places **(4)**

2.3 $\log_x 81 = 4$ **(3)**

QUESTION 3 [13 MARKS]

Answer the questions below WITHOUT the use of a calculator.

3.1 Write $\log_3 81 = 4$ in exponential form, and hence determine $\log_3 \frac{1}{9}$. **(4)**

3.2 Determine $\log_2 32 + \log_5 1$. **(3)**

3.3 Write down the equation of the inverse of $f(x) = 2^x$ in the form $y = \ldots$ **(3)**

3.4 Write down the domain of $y = \log_2 x$, and explain why. **(3)**

TOTAL: 36 marks

This question paper consists of 3 questions.

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