EXAM-STYLE CLASS TEST

MARKS	DURATION	QUESTIONS
48	1 hour 15 minutes	4

Name: _____ Class: _____

Date: _____

MARK ____ / 48

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 R15 000 is invested at 9% p.a. compounded annually for 5 years. The final amount is ... (1)

A) R8 079,36 **B)** R21 750
C) R23 079,36 **D)** R16 350

1.2 R80 000 depreciates at 15% p.a. on the REDUCING-BALANCE method. After 4 years it is worth ... (1)

A) R57 800 **B)** R38 239,50
C) R32 000 **D)** R41 760,50

1.3 Interest compounded QUARTERLY at 8% p.a. for 3 years uses ... (1)

A) $i = 0{,}08$ and $n = 12$ **B)** $i = 0{,}08$ and $n = 3$
C) $i = 0{,}02$ and $n = 12$ **D)** $i = 0{,}02$ and $n = 3$

1.4 A NOMINAL rate differs from an EFFECTIVE rate because ... (1)

A) the nominal rate is quoted per year but compounded more often than yearly **B)** they mean the same thing
C) the nominal rate includes inflation **D)** the effective rate is always the lower of the two

1.5 12% p.a. compounded MONTHLY has an effective annual rate of ... (1)

A) 1% **B)** 12,55%
C) 12% **D)** 12,68%

1.6 What principal grows to R50 000 in 6 years at 7% p.a. compounded annually? (1)

A) R46 728,97 **B)** R35 211,27

C) R75 036,52 **D)** R33 317,11

1.7 The growth of a town's population is worked out with ... (1)

A) $A = P(1 + ni)$ **B)** $A = P(1 + i)^n$

C) $A = P(1 - ni)$ **D)** $A = P(1 - i)^n$

1.8 R2 000 is deposited at the START of each year for 3 years at 10% p.a. compounded annually. Just after the third deposit the value is ... (1)

A) R6 620 **B)** R6 200

C) R6 000 **D)** R7 282

1.9 If a car's value HALVES in 5 years on the reducing-balance method, the annual rate is about ... (1)

A) 50% **B)** 12,94%

C) 10% **D)** 20%

1.10 Inflation runs at 5,5% p.a. In 10 years, goods costing R1 000 today will cost ... (1)

A) R550 **B)** R1 708,14

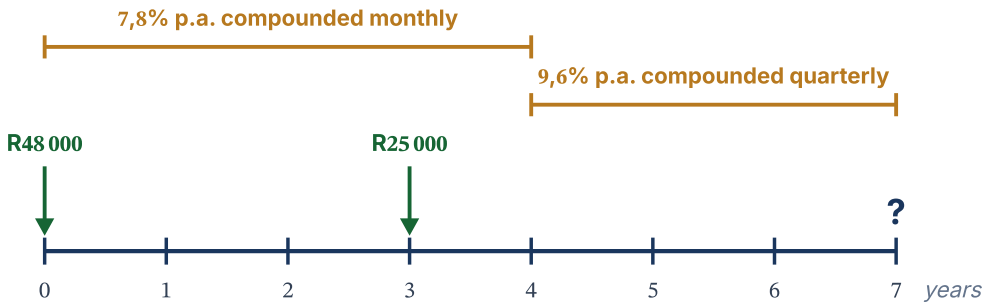
C) R1 550 **D)** R1 055

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 [12 MARKS]

Nomsa deposited R48 000 into an account paying interest at 7,8% p.a. compounded monthly. Exactly three years later she deposited a further R25 000 into the same account. Four years after her INITIAL deposit the interest rate changed to 9,6% p.a. compounded quarterly. The timeline below represents this information.



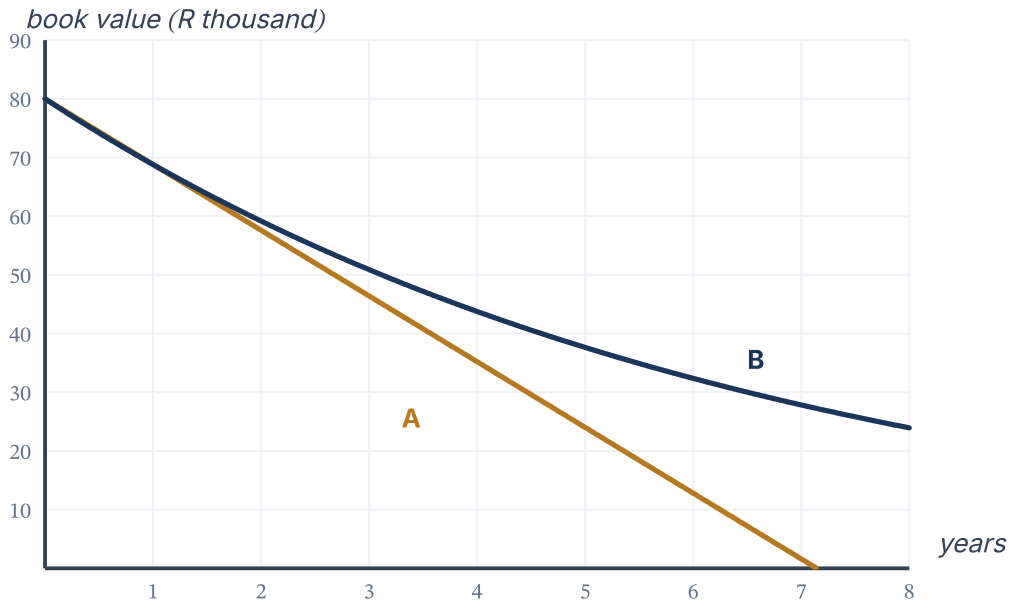
2.1 Calculate the amount in the account at the end of the fourth year. **(5)**

2.2 Hence calculate the value of the investment at the end of the seventh year. **(4)**

2.3 At the end of the seventh year Nomsa needs R135 000 as a deposit on a flat. Calculate how much MORE she still needs. **(3)**

QUESTION 3 [15 MARKS]

A machine is bought for R80 000. The graph below shows its book value over the first eight years under two different depreciation methods, A and B. Both use a rate of 14% p.a.



3.1 Write down which graph, A or B, represents depreciation on the REDUCING BALANCE, and give a reason for your answer. (2)

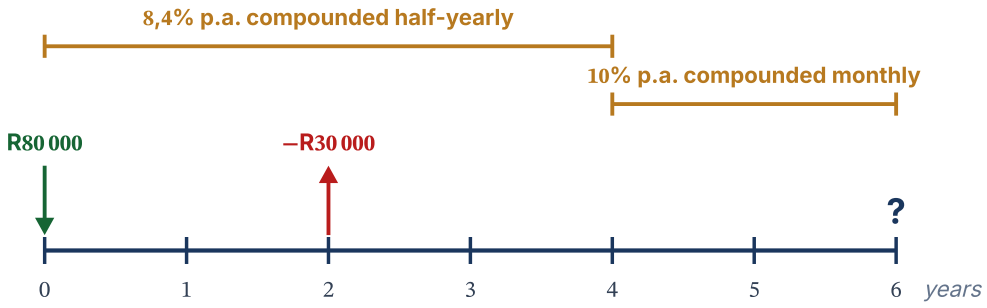
3.2 Calculate the book value of the machine after 6 years using EACH of the two methods, and hence the difference between them. (5)

3.3 Calculate after how many years the STRAIGHT-LINE book value reaches zero, and explain why the reducing-balance graph never reaches zero. **(4)**

3.4 Instead of buying the machine, the company invests the R80 000 at x% p.a., compounded monthly. Calculate x, correct to TWO decimal places, given that this gives an effective annual interest rate of 9,3%. **(4)**

QUESTION 4 [11 MARKS]

Sipho invested R80 000 in an account. Exactly two years later he withdrew R30 000 from the account. For the first four years the account paid interest at 8,4% p.a. compounded half-yearly, after which the rate changed to 10% p.a. compounded monthly. The timeline below represents this information.



4.1 Calculate the balance in the account immediately AFTER the withdrawal. **(3)**

4.2 Calculate the value of the investment at the end of the sixth year. **(5)**

4.3 Hence calculate the TOTAL interest that Sipho earned over the six years. **(3)**

TOTAL: 48 marks

This question paper consists of 4 questions.

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