EXAM-STYLE CLASS TEST

MARKS	DURATION	QUESTIONS
33	50 minutes	3

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

Date: .....

MARK ____ / 33

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 $T_n = a + (n-1)d$ is the general term of ... (1)

A) a quadratic pattern
B) a geometric sequence
C) an arithmetic sequence
D) a convergent series

1.2 The 20th term of $7\ ;\ 11\ ;\ 15\ ;\ \ldots$ is ... (1)

A) 87
B) 83
C) 80
D) 76

1.3 The common ratio of $3\ ;\ 6\ ;\ 12\ ;\ \ldots$ is ... (1)

A) 3
B) 6
C) $\frac{1}{2}$
D) 2

1.4 The 8th term of $3\ ;\ 6\ ;\ 12\ ;\ \ldots$ is ... (1)

A) 768
B) 192
C) 384
D) 24

1.5 The sum of the first 20 terms of $7\ ;\ 11\ ;\ 15\ ;\ \ldots$ is ... (1)

A) 1 800
B) 830
C) 90
D) 900

1.6 In an arithmetic sequence $T_5 = 17$ and $T_9 = 33$. Then $d = ...$ (1)

A) 8 **B)** 4

C) 16 **D)** 2

1.7 A geometric SERIES converges when ... (1)

A) $-1 < r < 1$ **B)** $r > 1$

C) $r < 0$ **D)** $r = 1$

1.8 The sum to infinity of $8 + 4 + 2 + ...$ is ... (1)

A) 8 **B)** 14

C) 16 **D)** 32

1.9 In a geometric sequence $T_3 = 20$ and $T_5 = 80$. The POSITIVE value of r is ... (1)

A) 4 **B)** 2

C) 60 **D)** $\sqrt{60}$

1.10 The sum of the first n terms of a GEOMETRIC series ($r - 1$ is not 0) is ... (1)

A) $\frac{a(r^n - 1)}{r - 1}$ **B)** $\frac{a}{1 - r}$

C) $\frac{a(r^n + 1)}{r - 1}$ **D)** $\frac{n}{2}[2a + (n - 1)d]$

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 [11 MARKS]

In an ARITHMETIC sequence the third term is 11 and the seventh term is 27.

2.1 Determine the common difference d. (3)

2.2 Determine the first term a. **(2)**

2.3 Calculate the sum of the first 20 terms. **(3)**

2.4 Determine which term of the sequence is equal to 99. **(3)**

QUESTION 3 [12 MARKS]

In a GEOMETRIC sequence the second term is 6 and the fifth term is 48.

3.1 Determine the constant ratio r. **(4)**

3.2 Determine the first term. **(2)**

3.3 Calculate the sum of the first 8 terms. **(3)**

3.4 Explain why this series does NOT have a sum to infinity, and give an example of a geometric series that does. **(3)**

TOTAL: 33 marks

This question paper consists of 3 questions.

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