EXAM-STYLE CLASS TEST

MARKS	DURATION	QUESTIONS
46	1 hour 10 minutes	4

Name: _____ Class: _____

Date: _____

MARK ____ / 46

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 P(A or B) = ... (1)

A) P(A) + P(B) − P(A and B)
B) P(A) + P(B)
C) P(A) + P(B) + P(A and B)
D) P(A) × P(B)

1.2 Events A and B are INDEPENDENT when ... (1)

A) P(A) + P(B) = 1
B) P(A) = P(B)
C) P(A and B) = P(A) × P(B)
D) P(A and B) = 0

1.3 P(A) = 0,6 and P(B) = 0,5, and A and B are independent. Then P(A and B) = ... (1)

A) 0,8
B) 0,1
C) 0,3
D) 1,1

1.4 Mutually exclusive events with non-zero probabilities are ... (1)

A) always independent
B) never independent
C) always complementary
D) independent only if P(A) = P(B)

1.5 Of 100 people, 60 like tea, 45 like coffee and 20 like both. The number liking NEITHER is ... (1)

A) 5
B) 15
C) 35
D) 25

1.6 For that same group, P(likes tea ONLY) = ... (1)

A) 0,2
B) 0,85
C) 0,4
D) 0,6

1.7 If P(A) = 0,4 and P(A and B) = 0,1, then P(A but NOT B) = ... (1)

A) 0,5 **B)** 0,4

C) 0,1 **D)** 0,3

1.8 A bag holds 4 red and 6 blue marbles. Two are drawn WITHOUT replacement. P(both red) = ... (1)

A) $\frac{2}{5}$ **B)** $\frac{12}{100}$

C) $\frac{4}{25}$ **D)** $\frac{2}{15}$

1.9 From that same bag, but WITH replacement, P(both red) = ... (1)

A) $\frac{4}{25}$ **B)** $\frac{2}{15}$

C) $\frac{8}{10}$ **D)** $\frac{2}{5}$

1.10 If P(not A) = 0,35, then P(A) = ... (1)

A) 0,3 **B)** 1,35

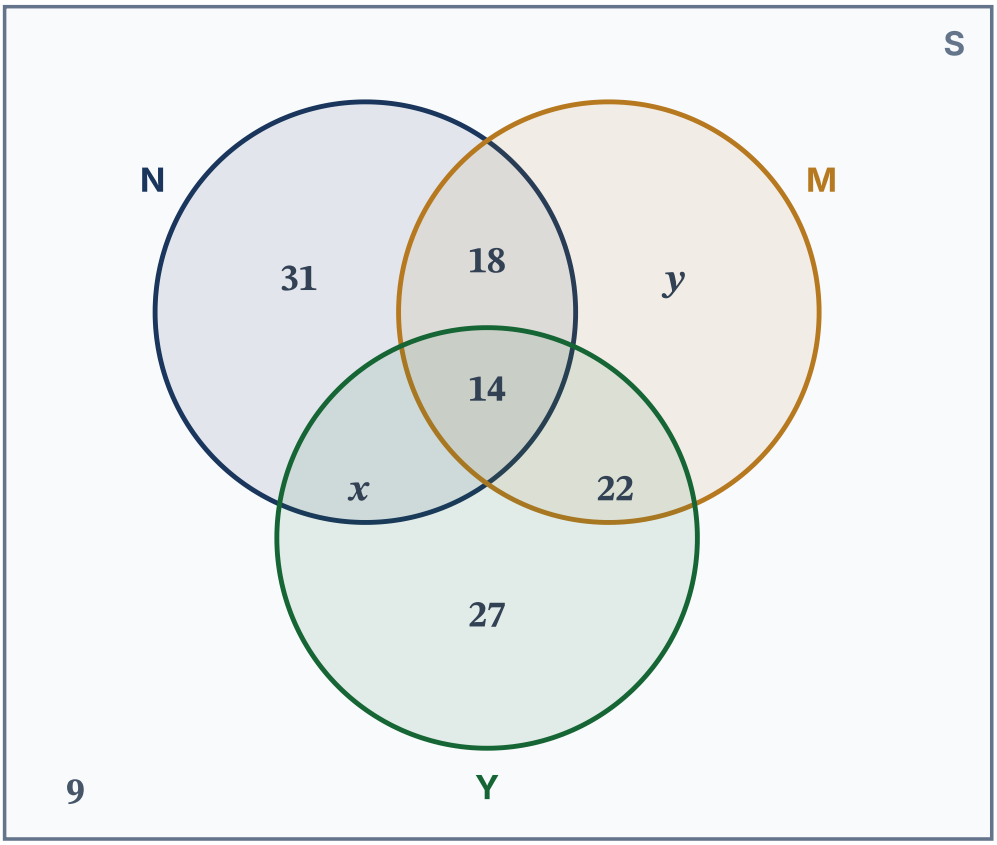
C) 0,35 **D)** 0,65

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]**

150 Grade 11 learners were asked which of three streaming services they use: Netflix (N), Showmax (M) or YouTube (Y). The results are shown in the Venn diagram below, where x and y represent numbers of learners. It is further given that $n(\text{N}) = 75$.



2.1 Calculate the value of x. **(3)**

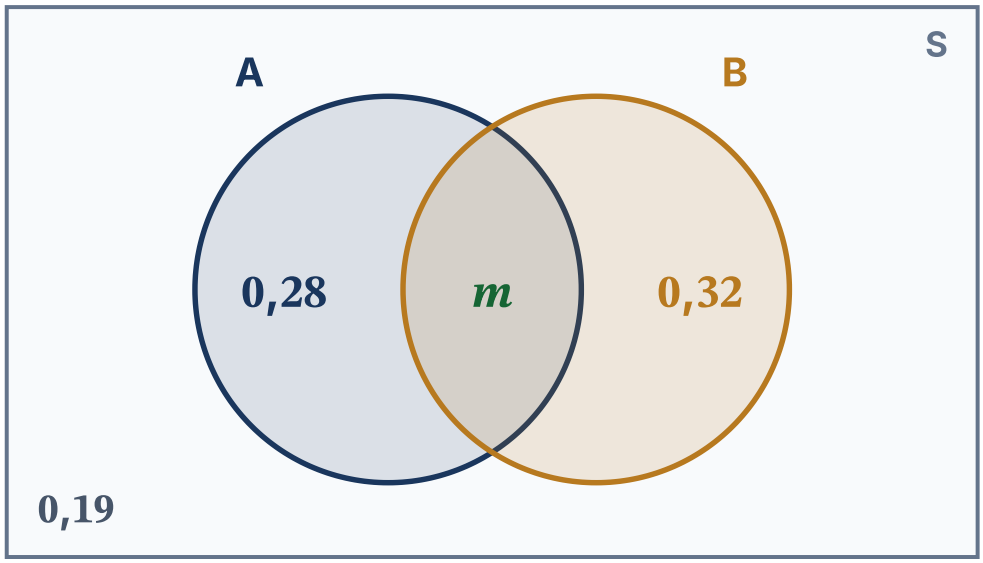
2.2 Hence calculate the value of y. **(3)**

2.3 Calculate the probability that a learner chosen at random from this group uses EXACTLY ONE of the three services. **(3)**

2.4 Calculate the probability that a learner chosen at random uses Showmax OR YouTube. **(4)**

QUESTION 3 [13 MARKS]

The Venn diagram below shows the PROBABILITIES associated with two events A and B in a sample space S. The probability that both A and B occur is m.



3.1 Calculate the value of m. **(3)**

3.2 Determine, showing ALL calculations, whether A and B are independent events. **(4)**

3.3 Are A and B mutually exclusive? Give a reason for your answer. **(2)**

3.4 Calculate P(not A or not B). **(4)**

QUESTION 4 [10 MARKS]

Two events A and B are such that $P(A) = 0{,}4$ and $P(A \text{ or } B) = 0{,}7$.

4.1 Determine P(B) if A and B are mutually exclusive. **(3)**

4.2 Determine P(B) if A and B are independent. **(4)**

4.3 Hence, for the independent case, calculate P(A and B) and the probability that B occurs but A does NOT. **(3)**

TOTAL: 46 marks

This question paper consists of 4 questions.

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