



**American**  
Mathematics Olympiad

## PRIMARY 3 (GRADE 3) MOCK TEST PAPER SET 1

**NAME:** \_\_\_\_\_

**Index Number:**

**SCHOOL:** \_\_\_\_\_

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### INSTRUCTIONS:

1. Please **DO NOT OPEN** the contest booklet until the Proctor has given permission to start
2. TIME: **1 hour 30 minutes**.
3. There are 25 questions with 100 total points:  
**Section A:** Questions 1 to 15 score 3 points each, no points are deducted for an unanswered or wrong answer.  
**Section B:** Questions 16 to 20 score 5 points each, no points are deducted for an unanswered or wrong answer.  
**Section C:** Questions 21 to 25 score 6 points each, no points are deducted for an unanswered or wrong answer.
4. Shade your answers neatly using a **2B lead pencil** in the Answer Entry Sheet.
5. PROCTORING: No one may help any student in any way during the contest.
6. No electronic devices capable of storing and displaying visual information are allowed during the course of the exam. Strictly **No Calculators** are allowed.
7. All students must fill and shade their **Name, School and Index Number** in the Answer Entry Sheet and Contest booklet.
8. MINIMUM TIME: Students must stay in the exam hall for at least 1 hour.
9. A student must show detailed working and transfer answers to the Answer Entry Sheet.
10. **No exam papers and written notes can be taken out by any contestant.**



**SIU**  
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SOUTHERN ILLINOIS UNIVERSITY  
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## **ROUGH WORKING**

## Section A: 15 Multiple Choice Questions

3 points each

### Question 1

Solve:

$$100 + 90 - 80 - 70 + 60 + 50 - 40 - 30 + 20 + 10$$

- A. 90
- B. 110
- C. 100
- D. 130
- E. 120

### Question 2

Rohit can go home on Diwali which falls on Thursday, 12<sup>th</sup> November this year. Diwali is 45 days later. What day is today?

- A. Sunday
- B. Friday
- C. Wednesday
- D. Monday
- E. Tuesday

### Question 3

What will be the digit in hundreds place of the sum of the following expression?

$$40444 + 44044 + 44404 + 44440$$

- A. 0
- B. 4
- C. 8
- D. 2
- E. 3

### Question 4

$$\begin{array}{r} \phantom{\times} A \phantom{0} 8 \\ \times \phantom{0} \phantom{0} 8 \\ \hline B \phantom{0} C \phantom{0} C \\ \hline \end{array}$$

Find the sum of  $A + B + C$  if different letters stand for different digits.

- A. 15
- B. 12
- C. 10
- D. 8
- E. 7

### Question 5

Chloe's current age is a multiple of 6. Next year, her age will be a multiple of 5. She is more than 30 years old and less than 70 years old. Find her age 4 years from now.

- A. 62
- B. 59
- C. 60
- D. 61
- E. 58

### Question 6

$$\blacktriangledown + 2\blacksquare = 26$$

$$\blacksquare + 2\bullet = 20$$

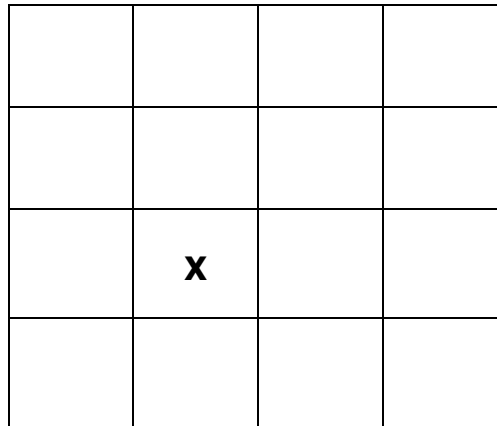
$$\bullet + 2\blacktriangledown = 17$$

Find the product of  $\blacktriangledown$ ,  $\bullet$  and  $\blacksquare$ .

- A. 210
- B. 21
- C. 300
- D. 30
- E. 60

### Question 7

The following picture shows a  $4 \times 4$  square. How many squares of any sizes are there comprised of the one marked with **X**?



- A. 1
- B. 4
- C. 5
- D. 10
- E. 16

### Question 8

A 5-digit number is a palindrome. A palindrome is a number that reads the same forward or backward. The number satisfies the following conditions:

- The sum of the first three digits is 14,
- 3<sup>rd</sup> digit is half of the 2<sup>nd</sup> digit,
- The sum of the second, third and fourth digit is 15.

Find the number.

- A. 58158
- B. 66366
- C. 56356
- D. 64246
- E. 56365

**Question 9**

The lamp is more costly than the watch and the candle stand. The candle stand is less expensive than the watch but more expensive than the basket. Which is the second most expensive item?

- A. Lamp
- B. Candle Stand
- C. Basket
- D. Sofa
- E. Watch

**Question 10**

Harry brought few marbles to school. He distributed one-third of the marbles among his friends on the bus. He gave 20 marbles to his classmates. Now he is left with only one-fourth of his marbles. How many marbles did he have at first?

- A. 24
- B. 36
- C. 48
- D. 40
- E. 42

**Question 11**

In the following picture, every adjacent four cells have a sum of 20. Find the value of  $X + Y$ .

|  |   |   |  |   |  |   |  |   |  |
|--|---|---|--|---|--|---|--|---|--|
|  | 6 | 8 |  | 4 |  | X |  | Y |  |
|--|---|---|--|---|--|---|--|---|--|

- A. 12
- B. 14
- C. 8
- D. 10
- E. 6

**Question 12**

Piyush's clock is not working properly. For every hour it lags 5 minutes behind. He set the clock correctly at 12.00 pm. What time will it be on his clock if the time now is 2.00 am?

- A. 1.00 pm
- B. 1.10 am
- C. 12.30 am
- D. 1.50 am
- E. 12.50 am

**Question 13**

Jack and his father's weight add up to 100 kg. If Jack loses 4 kg, he will be exactly half of his father's weight. What is the difference between their weights, in kg?

- A. 28
- B. 30
- C. 32
- D. 34
- E. 36

**Question 14**

Identify the pattern and find the missing value.

| A  | B  | C  | D  |
|----|----|----|----|
| 17 | 15 | 16 | 16 |
| 24 | 26 | 38 | 12 |
| 23 | 9  | 12 | 20 |
| 45 | 8  | 31 |    |

- A. 31
- B. 20
- C. 12
- D. 22
- E. 44

**Question 15**

It takes 10 women to stitch 50 soft toys in 2 hours. How many soft toys will be done by 6 women in 4 hours, assuming all women work at the same pace?

- A. 50
- B. 60
- C. 40
- D. 100
- E. 80

## **Section B: 5 Open-Ended Questions**

### **5 Points Each**

#### **Question 16**

Kevin cycles 10 km in 1 hour and 15 minutes. How many km will he complete in 5 hours?

#### **Question 17**

A basket contains an equal number of balls and pebbles. They are either white or black in color. The number of white balls is 30 and the total number of black items is 30. If the difference between the number of black and white balls is 20, find the number of white pebbles.

**Question 18**

A book has 250 pages. How many digits are used to print the page numbers of the book?

**Question 19**

Study the pattern and find the sum of the 9<sup>th</sup> and 10<sup>th</sup> term.

50, 53, 56, 61, 66, 73, 80 ...

**Question 20**

60 potatoes weigh 4 kg. If the cost of 1 kg of potato is \$30. What is the price of 2 dozen potatoes?

## **Section C: Open-Ended Questions**

### **6 Points Each**

#### **Question 21**

The numbers 20, 21, 22, ..., 63, 64 are written as a 90-digit number

2021222324 ... 626364

All the odd digits are then removed. How many digits remain?

#### **Question 22**

Ten small ropes of the same length were knotted together to form a big rope of 81 cm. If the knotted area was 1 cm for every rope, how long was each rope?

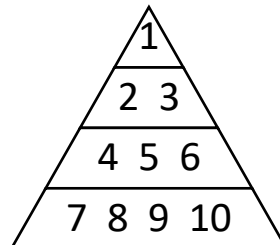
**Question 23**

Find the value of the digit at the ones place of the following expression:

$$99 \times 101 \times 103 \times 105 \times 107 - 100 \times 102 \times 104 \times 106 \times 108$$

**Question 24**

If a number pyramid was built as shown in the picture, what will be the 10th number in the 12th row?



**Question 25**

A number has a remainder of 1 when divided by 2, 3, or 6 and has a remainder of 4 when divided by 5. If this number is divisible by 7, find the smallest such number.

### Answer Key

|                    |          |
|--------------------|----------|
| <b>QUESTION 1</b>  | <b>B</b> |
| <b>QUESTION 2</b>  | <b>D</b> |
| <b>QUESTION 3</b>  | <b>E</b> |
| <b>QUESTION 4</b>  | <b>A</b> |
| <b>QUESTION 5</b>  | <b>E</b> |
| <b>QUESTION 6</b>  | <b>C</b> |
| <b>QUESTION 7</b>  | <b>D</b> |
| <b>QUESTION 8</b>  | <b>E</b> |
| <b>QUESTION 9</b>  | <b>E</b> |
| <b>QUESTION 10</b> | <b>C</b> |
| <b>QUESTION 11</b> | <b>A</b> |
| <b>QUESTION 12</b> | <b>E</b> |
| <b>QUESTION 13</b> | <b>A</b> |

|                    |             |
|--------------------|-------------|
| <b>QUESTION 14</b> | <b>D</b>    |
| <b>QUESTION 15</b> | <b>B</b>    |
| <b>QUESTION 16</b> | <b>0040</b> |
| <b>QUESTION 17</b> | <b>0020</b> |
| <b>QUESTION 18</b> | <b>0642</b> |
| <b>QUESTION 19</b> | <b>0207</b> |
| <b>QUESTION 20</b> | <b>0048</b> |
| <b>QUESTION 21</b> | <b>0048</b> |
| <b>QUESTION 22</b> | <b>0009</b> |
| <b>QUESTION 23</b> | <b>0005</b> |
| <b>QUESTION 24</b> | <b>0066</b> |
| <b>QUESTION 25</b> | <b>0049</b> |