FEMSSISA SOUTHERN AFRICAN PRIMARY MATHEMATICS OLYMPIAD

(SAPMO)
GRADE SIX
FINAL ROUND
DATE: 12 OCTOBER 2017
TIME: 120 MINUTES

Instructions:

1. This booklet has 20 questions.

2. Use the answer sheet provided. Enter your answer in the block.

3. All working details must be done in the space provided.

3. Calculators are not permitted..

4. Diagrams are not necessarily drawn to scale.

5. The first 15 problems carry one mark each and the next 5 carry 2 marks each.

6. You have 120 minutes for the paper which works out to an average of 6 minutes per question.

7. Read the questions carefully before answering.

GRADE SIX FINAL ROUND 2017

1. Write down the 8th number of this addition sequence.
   3; 4; 7; 12; 19;...

2. Find the value of $\square$

   $72 = \square \times \square - \square$

3. What is the units digit of the following product?
   $19 \times 17 \times 15 \times 13 \times 11 \times \ldots \times 3 \times 1$

4. Find A + B + C if A; B and C are different.

   ```
     AB A
       B C
   +     C
   -------
     5 6 B
   ```

5. How many zeros does the following product end in?
   $29 \times 28 \times 27 \times 26 \times 25 \times 24 \times 23 \times 22 \times 21 \times 20$

6. Evaluate
   $49 \times 2017 + 52 \times 2017 - 100 \times 2017$

7. Consider the following 9 digit bank card number where the sum of the 4 numbers in the consecutive bocks is 18. What is the value of Y?

Y			3	X		8	

8. Evaluate
   $\left(1-\frac{1}{2}\right) \times \left(1-\frac{1}{3}\right) \times \left(1-\frac{1}{4}\right) \times \ldots \ldots \times \left(1-\frac{1}{15}\right)$

9. Half the number more than the number is 24. Find the number.

10. Observe

    $5 + 7$ $= 2 \times 6 = 12$
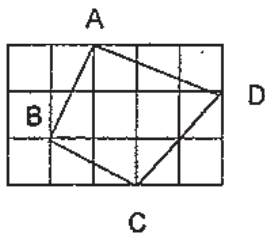 $3 + 5 + 7$ $= 3 \times 5 = 15$
    $1 + 3 + 5 + 7 + 9$ $= 5 \times 5 = 25$

Now calculate the sum of the following series of 30 numbers.
$11 + 13 + 15 + 17 + \ldots\ldots\ldots + 65 + 67 + 69$

11. When Indy added the 6 numbers from Monday to Saturday in the month he obtained the answer 105. What is the date of the 1st Thursday of the month?

12. Determine the area of ABCD

13. It takes 20 minutes to cut a length of timber into 5 pieces. Rob cuts 6 lengths of the timber into 7 pieces each working at the same rate without stopping. If he starts the work at 09:00 then what time is he expected to finish?

14. At a party each person shook hands with one quarter of the number of people at the party. The total number of handshakes was 288. How many people were at the party?

15. Write down the last 3 digits of this product.
55555×66666

16. Determine the number I stand for.
- I am a 4 digit number A B C D where A; B; C and D are different digits.
- $A + B + C = 19$
- $B + C + D = 22$
- $(A + B)$ is equal to $(C + D)$
- D is not 9.

17. My watch loses 6 minutes every hour. The time was correct at 06:00. What was the watch time when the actual time was 15:30 ?

18. Find the sum of the digits of:

$$\underbrace{555...555}_{\text{16 digits}} \div \underbrace{111...111}_{\text{8 digits}}$$

19. It takes a cold water tap to 15 minutes to fill a bath which has a capacity of 140 litres. It takes the hot water tap 20 minutes to fill this bath from empty. If both taps are opened simultaneously then how long will it take to fill this bath if the rate of flow of both taps is constant?

20. Lily glued together 125 one cm cubes with all white faces. She painted the faces of this large cube green. The small cubes were then dismantled. How many cubes had 2 green faces?

TOTAL: 15 x 1 = 15
        5 x 2 = 10

25