The University of the West Indies, Mona Campus

2014 Junior Mathematics Olympiad

Test for Grades 4, 5, and 6

Student Information

Name: _____

Grade: _____

School Information

School: _____

Principal: _____

Olympiad Coordinator: _____

Examination Questions

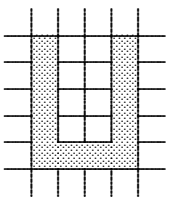
1) What is the value of $0 + 1 + 2 + 3 + 4 - 3 - 2 - 1 - 0$?

(a) 0 (b) 2 (c) 4 (d) 10 (e) 16

2) Shanique bought some cookies. Each one cost \$30. She gave the salesperson \$100 and received \$10 in change. How many cookies did Shanique buy?

(a) 2 (b) 3 (c) 4 (d) 5 (e) 6

3) In the figure below, the letter U has been drawn on grid paper. How many squares does the letter U cover?



(a) 10 (b) 8 (c) 11 (d) 13 (e) 12

4) A certain elevator cannot carry more than 150 kg. Four friends weigh 60 kg, 80 kg, 80 kg, and 80 kg, respectively. What is the least number of trips necessary to carry the four friends to the highest floor?

(a) 3 (b) 7 (c) 1 (d) 4 (e) 2

5) Which of these numbers has the smallest value?

(a) $2 + 0 + 1 + 4$
(b) $201 - 4$
(c) $2 \times 0 \times 1 \times 4$
(d) $20 - 14$
(e) $4 + 1 + 0 - 2$

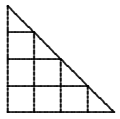
6) Four candy bars and three sweeties cost \$450. One candy bar costs \$90. How much does one sweetie cost?

(a) \$20 (b) \$30 (c) \$40 (d) \$50 (e) \$60

7) From the five numbers below, Liana chose one number. The number is even and none of its digits are the same. The hundreds digit is double the ones digit. The tens digit is greater than the thousands digit. Which number did Liana choose?

(a) 1246 (b) 3874 (c) 4683 (d) 4874 (e) 8462

8) Several triangles and squares may be found in the figure below. How many more triangles than squares may be found?



(a) 4 more (b) 2 more (c) 1 more (d) 5 more (e) 3 more

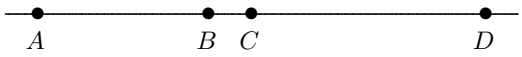
9) Some students walked to the museum in rows of three. Al, Bob, and Carl noticed that they were the 7th row from the front and the fifth row from the back. How many students went to the museum?

(a) 12 (b) 24 (c) 30 (d) 33 (e) 36

10) What is the value of $7001 \times 100 + 7001$?

(a) 7001007001
(b) 70017001
(c) 7008001
(d) 707101
(e) 77011

11) In the figure below, A, B, C, and D are points on a line. The distance between A and C is 10 cm, between B and D is 15 cm, and between A and D is 22 cm. What is the distance between B and C?



(a) 3 cm (b) 2 cm (c) 5 cm (d) 4 cm (e) 1 cm

12) Al, Ben, Carl, and Dan each participate in a different sport: karate, soccer, volleyball, and judo. Alex does not like sports played with a ball. Ben practices judo and often attends soccer games to watch his friend play. Which of the following statements has to be true?

(a) Al plays volleyball.
(b) Carl plays volleyball.
(c) Al does karate.
(d) Ben plays soccer.
(e) Dan does karate.

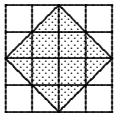
13) Some children went to a picnic. Each child had at least one brother and one sister there. What is the smallest number of children that could have been at the picnic?

(a) 1 (b) 2 (c) 3 (d) 4 (e) 8

14) During the time that Kaysia eats two bowls of ice cream, Daysia eats three bowls of ice cream. The two girls ate ten bowls of ice cream in one hour. How many bowls did Kaysia eat?

(a) 3 (b) 4 (c) 5 (d) 6 (e) 7

15) The grid in the figure below is made of 1 cm $\times$ 1 cm squares. What is the area, in cm^2, of the shaded region?



(a) 9 (b) 16 (c) 7.5 (d) 8 (e) 12

16) How many two-digit numbers ab are there with a and b odd numbers which are not equal to each other?

(a) 15 (b) 20 (c) 25 (d) 30 (e) 50

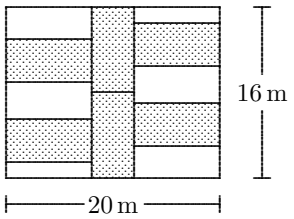
17) Peter wrote out consecutive whole numbers starting with 3 until he had written 35 digits. What was the greatest whole number Peter wrote?

(a) 12 (b) 22 (c) 23 (d) 28 (e) 35

18) There were 60 birds sitting in three trees. Suddenly, 6 birds flew from the first tree, 8 birds flew from the second tree, and 4 birds flew from the third tree. Then there were the same number of birds in each tree. How many birds were in the second tree at the beginning?

(a) 22 (b) 24 (c) 26 (d) 20 (e) 21

19) The figure below shows a rectangular garden with dimensions of 16 m by 20 m. The gardener has planted six identical flowerbeds (shaded grey in the diagram). What is the perimeter of each of the flowerbeds?



(a) 24 m (b) 22 m (c) 26 m (d) 20 m (e) 28 m

20) Akeem chose a certain number, subtracted 203 from it, and then added 2003 to his answer. The final result was 20003. What number did Akeem choose at the beginning?

(a) 23 (b) 17797 (c) 18203 (d) 21803 (e) 22209

21) Suppose a, b, c, d, and e are different digits. If $a+a+a=c$, $b+b+b=d$, and $c+d=e$, what digit is represented by e?

(a) 0 (b) 2 (c) 6 (d) 8 (e) 9

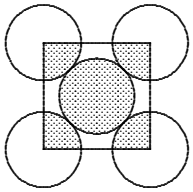
22) Pedro bought three kinds of cookies: small, medium, and large. The large cookies cost 4 pesos each, the medium ones cost 2 pesos each, and the small ones cost 1 peso each. Pedro bought 10 cookies and spent 16 pesos. How many large cookies did he buy?

(a) 1 (b) 2 (c) 3 (d) 4 (e) 5

23) A merchant has 6 bottles. Their volumes are 16 oz, 18 oz, 22 oz, 24 oz, 32 oz, and 34 oz. Some are filled with orange juice, some are filled with cherry juice, and one is empty. There is twice as much orange juice as cherry juice. What is the volume of the empty bottle?

(a) 18 oz (b) 34 oz (c) 24 oz (d) 32 oz (e) 22 oz

24) The figure below shows five equal circles. One is in the middle. The other four touch it and their centres are the vertices of a square. What is the ratio of the area of the shaded regions of the circles to the area of the unshaded regions of the circles?



(a) 1 : 3 (b) 1 : 4 (c) 2 : 5 (d) 5 : 4 (e) 2 : 3

25) Mary, Dorothy, Sylvia, Ella, and Kathy are sitting on a bench in the park. Mary is not sitting farthest to the right. Dorothy is not sitting farthest to the left. Sylvia is not sitting farthest to the right or to the left. Kathy is not sitting next to Sylvia, and Sylvia is not sitting next to Dorothy. Ella is sitting to the right of Dorothy, but not necessarily next to her. Which girl is sitting farthest to the right?

(a) Ella (b) Sylvia (c) Dorothy (d) Kathy (e) Can't tell

End of Questions

You may mail this completed question paper to:

Junior Olympiad
P.O. Box 94
Mona Post Office
Kingston 7

You may also deliver your entry by hand or by courier directly to the Department of Mathematics at the UWI, Mona. In all cases, an entry must be received by February 17, 2014 to be considered.

For more information, extra copies of this question paper, and the latest updates, please visit the following website:

http://myspot.mona.uwi.edu/mathematics/

(see the link to the Junior Olympiad Resource Centre).