# COPERNICUS

## A TRADITION OF EXCELLENCE

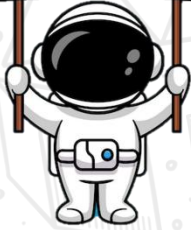**WELCOME TO COPERNICUS**

## INSTRUCTIONS

You are about to take Copernicus Exam.

Please read the followings carefully.

1. The exam has 25 multiple choice-questions. Each question weighs 4 points. The maximum score a student can get is 100. There is a penalty of one point for each incorrect answer. So only answer the questions you are sure of.

2. Start with the easier questions, you can always come back to the questions you leave.

3. The time allocated for the exam is 60 minutes. You will start when the invigilator tells you to start.

4. You are required to comply with the directions given by the head invigilator before the examination.

5. Those who are taking the exam with a mobile phone MUST make sure that during the examination no one calls.

6. If anything in the examination is unclear, you can contact the invigilator.

7. Where permitted you may use a translation dictionary.

8. Students must not give or receive assistance of any kind during the exam. Any cheating, any attempt to cheat, assisting others to cheat, participating therein, or engaging in such improper conduct is a serious violation and will generally result in disqualifying.

Remember that "Hard work beats talent when talent doesn't work hard"
**We wish you the very best luck on the exam.**

**1.** In 4th Copernicus Elimination Round, there were 62 students from Singapore, 16 more students from India than Singapore and 12 less students from Laos than India. How many students from these 3 countries took elimination round?

**A)** 194

**B)** 206

**C)** 212

**D)** 224

**E)** 230

**2.** An elevator in North America University, where Global Round Exam happened, can carry 10 adults or 15 children. According to this, how many children can ride this elevator together with 8 adults?

**A)** 2

**B)** 3

**C)** 4

**D)** 5

**E)** 6

**3.** Alex´s spaceship can travel 120 $km$ on 6 liters of gasoline. Accordingly, how many liters of gasoline are needed to travel 600 kilometers?

**A)** 12

**B)** 24

**C)** 30

**D)** 36

**E)** 48

**4.** Alex had a broken faucet that drains 42 liters of water in 15 minutes. How many liters of water does this faucet flow in 2.5 hours?

**A)** 360

**B)** 390

**C)** 420

**D)** 450

**E)** 480

**5.** Alex, our mascot astronaut, is studying to Global Round. He does $\frac{4}{7}$ of the 42 questions he has. How many questions he has left to do?

**A)** 12

**B)** 18

**C)** 21

**D)** 24

**E)** 30

**6.** Alex, our mascot Astronaut is learning fractions. Can you help him to discover which of the following fractions is not equivalent to the others?

**A)** $\frac{1}{2}$

**B)** $\frac{2}{4}$

**C)** $\frac{3}{6}$

**D)** $\frac{4}{9}$

**E)** $\frac{5}{10}$

**7.** Numbers from 1 to 100 are written side by side to form a large number. How many numbers 7 were used to create this number?

$$1234567891011 \ldots 100$$

**A)** 18

**B)** 19

**C)** 20

**D)** 21

**E)** 22

**8.** What is the difference between the largest and smallest of 20 consecutive natural numbers?

**A)** 19

**B)** 20

**C)** 21

**D)** 22

**E)** 23

**9.** In the operations below, each letter represents a number. So, what is the sum of $A + B$?

$$\begin{array}{ccc} & A & A & A \\ + & A & A & A \\ \hline & 6 & 6 & 6 \end{array} \qquad \begin{array}{ccc} & A & A & A \\ - & B & B & B \\ \hline & 2 & 2 & 2 \end{array}$$

**A)** 3

**B)** 4

**C)** 5

**D)** 6

**E)** 7

**10.** Alex puts \$8 in his piggy bank every day. After 16 days, he spends \$25 of the money accumulated in his piggy bank. Accordingly, how many dollars will Alex have left?

**A)** 100

**B)** 103

**C)** 106

**D)** 109

**E)** 112

**11.** The figure below was formed with 7 regular hexagons with a side length of 3 $cm$. What is the perimeter of the formed shape, in centimeters?



**A)** 90

**B)** 93

**C)** 96

**D)** 99

**E)** 102

**12.** If we increase all the summed numbers in the equation below by 1, how much will the value of $A$ increase?

$$A = 1 + 3 + 5 + \cdots + 29$$

**A)** 14

**B)** 15

**C)** 16

**D)** 28

**E)** 29

**13.** Two pencil holders have the same price as six pencils. Three pencils have the same price as six erasers. Four pencil holders have the same price as twelve pencil sharpeners. How many erasers have the same price as one pencil sharpener?

**A)** 1

**B)** 2

**C)** 3

**D)** 4

**E)** 6

**14.** In the square below, the outermost dots are colored yellow and the other dots are colored orange. How many orange dots are in a square of 100 dots like the one below?
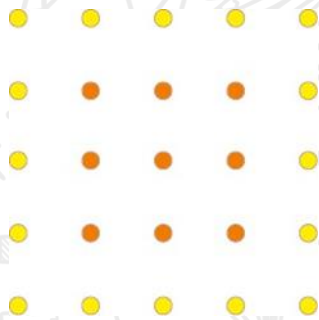


**A)** 56

**B)** 60

**C)** 61

**D)** 62

**E)** 64

**15.** The side lengths of the rectangle $ABCD$ given below are a natural number in meters. If the area of this rectangle is 48 square meters, what is the minimum perimeter in meters?
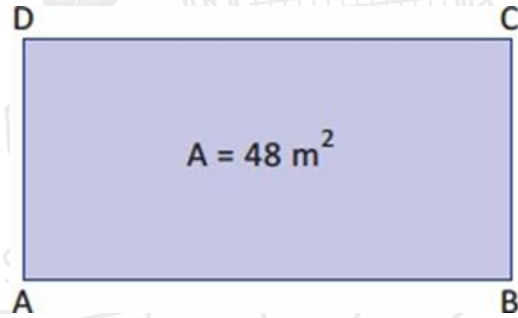


**A)** 24

**B)** 28

**C)** 32

**D)** 36

**E)** 40

**16.** The long side of the rectangular track below is 3 times the shorter side. The perimeter of rectangle $ABCD$ is 240 meters. Where will Pete be after 640 meters, running from point $D$ and advancing in the direction of the arrow?



**A)** Between $D$ and $C$

**B)** In $B$

**C)** In $C$

**D)** In $D$

**E)** Between $A$ and $B$

**17.** With the matchsticks below, geometric shapes were made according to a certain rule. How many matchsticks should be used to perform the 6$^{th}$ of this pattern?



**1$^{st}$ step**    **2$^{nd}$ step**         **3$^{rd}$ step**

- **A)** 11
- **B)** 13
- **C)** 16
- **D)** 19
- **E)** 22

**18.** The numbers 1, 2, 3 and 4 will be placed in the $4x4$ table formed from the unit squares below, provided that they are used only once in the same row and column. So, what is the sum of $A + B$?



- **A)** 2
- **B)** 3
- **C)** 4
- **D)** 5
- **E)** 6

**19.** The number of Thursdays in 2020 is more than the number of Fridays. Which of the following is the first day of this year? (2020 is a leap year)

- **A)** Tuesday
- **B)** Wednesday
- **C)** Thursday
- **D)** Friday
- **E)** Saturday

**20.** If Alex gives $30 to Cassy, their money will be equal. If Cassy gives $30 to Alex, Alex's money becomes 5 times that of Cassy. How many dollars does Alex have?

- **A)** 120
- **B)** 100
- **C)** 80
- **D)** 60
- **E)** 40

**21.** How many two-digit natural numbers are there where the digit in the tens place is greater than the digit in the ones place?

- **A)** 36
- **B)** 40
- **C)** 42
- **D)** 45
- **E)** 55

**22.** There is a rule between the numbers given below. What is the sum of the numbers that must replace *A* and *B* according to this rule?



| | | | | |
|---|---|---|---|---|
| 15 | 45 | 23 | 33 | A |
| 51 | 19 | 39 | 27 | B |
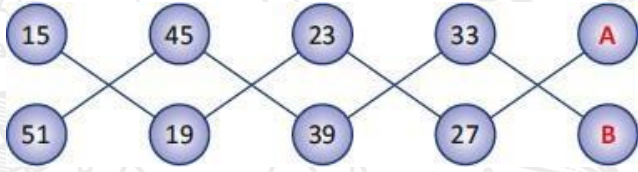
A) 58

B) 60

C) 62

D) 64

E) 66

**23.** The sum of 7 consecutive natural numbers is 105. What is the sum of the largest and smallest of these natural numbers?

A) 30

B) 32

C) 34

D) 36

E) 38

**24.** Alex solve 22 questions in one hour. Every day, during 5 hours he will solve the questions. In one week how many questions he will solve?

A) 770

B) 760

C) 570

D) 555

E) 110

**25.** Alex and Ben have a total of $300 coins. If Ben gives $20 to Alex, they both have equal money. Accordingly, how many dollars does Ben have in the beginning?

A) 150

B) 145

C) 140

D) 135

E) 130