GAP

I / 2022

There are two or three gaps in each of the following short texts, indicating that something has been omitted in the sentence. From the options provided, choose two or three words that **best** fit the meaning and the style of the text.

1.

The existence of collective ceremonials is usually _____ by sociologists to be one of the main factors that distinguish religion from magic, although the line between them is not _____.

(A) required – evident
(B) considered – clear
(C) highlighted – straight
(D) named – verified
(E) noticed – true

2.

As early as 1940, a regulation on waste, _____ on the collection of recyclable waste, came into force, but regulations concerning the way of establishing and maintaining landfills were not adopted _____ 1975.

(A) literally – earlier in
(B) understandably – during
(C) namely – until
(D) e.g. – since
(E) or – easily in

3.

At the _____ of the 1830s, Europe was _____ by another revolutionary wave, the impulse again _____ from France.

(A) century – seized – heading
(B) edge – tortured – directed
(C) beginning – hit – coming
(D) rise – troubled – shooting
(E) start – caused – arriving

From options **A–E**, choose the best pair of words to fill in the gaps (**in the order provided**), so that the relationship between the words to the right of the equal sign (=) is **most** like the relationship between the words to the left of the equal sign.

4.

LOST : _____ = BROKEN : _____

(A) find – repair
(B) disappear – fix
(C) discover – damage
(D) hide – use
(E) locate – throw away

5.

_____ : GOOD = ENORMOUS : _____

(A) improving – small
(B) acceptable – huge
(C) amazing – large
(D) perfect – increased
(E) successful – tiny

6.

BENEFIT : _____ = _____ : SUFFERING

(A) money – war
(B) loss – difficulty
(C) reward – relief
(D) disadvantage – pleasure
(E) gain – happiness

In each of the following items, use options **A–E** to choose the word that is the closest to the meaning of the underlined word (**synonym**) in the context of the sentence. From options **F–J**, choose the word that is the closest to the **opposite** meaning of the underlined word (**antonym**) in the context of the sentence.

7.

The employee owes his current position in the company to the fact he is so diligent – he always puts a lot of effort into his projects.

synonym

(A) helpful
(B) intelligent
(C) ambitious
(D) skilled
(E) **hardworking**

antonym

(F) selfish
(G) **lazy**
(H) useless
(I) slow
(J) disliked

8.

The teacher punished the defiant pupil with extra-hard mathematics homework in the hope that the pupil would finally stop doing whatever he wanted and start following the rules.

synonym

(A) careless
(B) silly
(C) **rebellious**
(D) loud
(E) lazy

antonym

(F) careful
(G) uncooperative
(H) honest
(I) smart
(J) **obedient**

9.

The senator was very popular, that's why she frequently appeared in the media and gave interviews on a weekly basis.

synonym

(A) proudly
(B) **often**
(C) even
(D) obviously
(E) cheerfully

antonym

(F) always
(G) secretly
(H) nervously
(I) **rarely**
(J) unsurely

Each of the following texts contains one part whose meaning **does not correspond to** with the overall meaning of the text. For each item, choose the option with the part of the text which **is not consistent with its overall meaning**.

10.

Professor Yudkin identified sugar as a major cause of obesity as early as 1972. However, he was instantly labelled as a lobbyist of the dairy industry and his work was rejected as "a mountain of nonsense". Nutritionists simply decided that fat rather than sugar was the enemy of health, and their hypothesis was anchored in official recommendations. In 1980, the US government issued the first guidelines laying down the need to reduce the amount of fat and cholesterol in the diet. But the less fat people consumed, the more obese they were. Nutritionists gradually began to admit that Professor Yudkin might have been wrong. Recently, the US government also silently admitted that sweet drinks rather than cholesterol were the real cause of obesity.

Which of the following parts of the text is **not consistent** with its overall meaning?

(A) However, he was instantly labelled as a lobbyist of the dairy industry and his work was rejected as "a mountain of nonsense".
(B) Nutritionists simply decided that fat rather than sugar was the enemy of health, and their hypothesis was anchored in official recommendations.
(C) But the less fat people consumed, the more obese they were.
(D) **Nutritionists gradually began to admit that Professor Yudkin might have been wrong.**
(E) Recently, the US government also silently admitted that sweet drinks rather than cholesterol were the real cause of obesity.

11.

Living in New York brings constant challenges. You experience huge competition in everything. You subconsciously compare your abilities and your life story with others all the time. On the contrary, in Prague it is possible to be an average person while still living happily. There's no need to do anything because a lot of people around you are not exceptional at all. Yes, you can meet a famous writer both in Prague and New York. But in New York, you don't get restless, thinking he is better than you.

Which of the following parts of the text is **not consistent** with its overall meaning?

(A) You experience huge competition in everything.
(B) On the contrary, in Prague it is possible to be an average person while still living happily.
(C) There's no need to do anything because a lot of people around you are not exceptional at all.
(D) Yes, you can meet a famous writer both in Prague and New York.
(E) **But in New York, you don't get restless, thinking he is better than you.**

12.

It is quite obvious that the institution of family has nothing to offer in the 21st century. Psychologists agree that the first human experiences are formed in our family. We grow up in it, being part of a spreading tree of human relations and learning to form a community. The fruits of our lives, the results of our work, upbringing and aspirations, are conditioned by what we have learned in our family. We find support and background in our family, celebrating the achievements and milestones of our lives.

Which of the following parts of the text is **not consistent** with its overall meaning?

(A) **It is quite obvious that the institution of family has nothing to offer in the 21st century.**
(B) Psychologists agree that the first human experiences are formed in our family.
(C) We grow up in it, being part of a spreading tree of human relations and learning to form a community.
(D) The fruits of our lives, the results of our work, upbringing and aspirations, are conditioned by what we have learned in our family.
(E) We find support and background in our family, celebrating the achievements and milestones of our lives.

13.

Socially and economically stronger parents are increasingly withdrawing their children from the public education system. That's why I think the Ministry of Education should not allow the establishment of new private schools. In fact, the Ministry's position on the issue of new private schools is neither in line with the country's long-term education plan nor with the strategic plan of regional development. It is important to realise that obstructing the establishment of private schools is pointless. It will only make that group of parents who really think about their children's education find other ways to escape from the public education system. And the people at the Ministry can be sure that these parents will find a way, because they are mostly highly educated and capable. To sum up, I believe that limiting the establishment of new private schools is a non-conceptual intervention that will not help the education system at all.

Which of the following parts of the text is **not consistent** with its overall meaning?

(A) **That's why I think the Ministry of Education should not allow the establishment of new private schools.**
(B) In fact, the Ministry's position on the issue of new private schools is neither in line with the country's long-term education plan nor with the strategic plan of regional development.
(C) It is important to realise that obstructing the establishment of private schools is pointless.
(D) And the people at the Ministry can be sure that these parents will find a way because they are mostly highly educated and capable.
(E) To sum up, I believe that limiting the establishment of new private schools is a non-conceptual intervention that will not help the education system at all.

14.

At a conference held in 2006, the International Astronomical Union adopted the unambiguous definition of "planet", because such a definition had not existed until then. Pluto, which did not meet the new criteria for a planet with many of its characteristics, was moved to the category of dwarf planets. So was, for example, Ceres, which had been referred to as a minor planet until then. Many people took the change with a heavy heart. Americans in particular were concerned about Pluto's fate, perhaps because it was the only planet in the Solar System that was not first observed and described in detail by Europeans, but by their own astronomers from ground observatories in the USA. Even a Disney cartoon character was named after it. Pluto cannot be observed from Earth, and no parameters of its body are known. Yet it is still a sort of national hero from the ranks of celestial bodies in the USA.

Which of the following parts of the text is **not consistent** with its overall meaning?

(A) Pluto, which did not meet the new criteria for a planet with many of its characteristics, was moved to the category of dwarf planets.
(B) So was, for example, Ceres, which had been referred to as a minor planet until then.
(C) Americans in particular were concerned about Pluto's fate, perhaps because it was the only planet in the Solar System that was not first observed and described in detail by Europeans, but by their own astronomers from ground observatories in the USA.
(D) **Pluto cannot be observed from Earth, and no parameters of its body are known.**
(E) Yet it is still a sort of national hero from the ranks of celestial bodies in the USA.

Answer all the following questions using **only** the information given in or implied by the text.

15.

The Thirty Years' War brought Sweden for the first and last time among the European powers. Based on the Peace of Westphalia, which ended that war, Sweden acquired a territory in the Holy Roman Empire, which, in addition to participating in the Imperial Diet, meant the opportunity to intervene in imperial politics in the long term. The Swedish rulers became imperial princes. However, their indiscretion and exaggerated desire for power in Eastern Europe, whether in terms of influence in weaker Poland or encounter with Russia, ultimately cost the Nordic monarchy its position and a large part of its territory.

Which of the following statements can be inferred from the text with certainty?

(A) The Swedish territory grew smaller as a result of the Peace of Westphalia.
(B) The countries possessing territories in the Holy Roman Empire couldn't participate in the Imperial Diet.
(C) **Sweden failed to maintain the power positions acquired after the Peace of Westphalia.**
(D) Russia was the first country that was able to defeat the Swedish troops.
(E) Sweden was the most successful country in the Thirty Years' War.

16.

The Office for Standards in Education, Children's Services and Skills (Ofsted) is under increasing pressure to prove that the results of school inspections are impartial and objective. Unofficially, it is believed that the results of inspections largely depend on the specific inspector coming to the school. Critics of Ofsted say that every tenth inspection visit is estimated to be not fully objective. According to the proposal of the teachers' unions, schools should always be visited by two inspectors independent of each other, and the degree of their consensus should be examined.

Which of the following statements can be inferred from the text with certainty?

(A) It is impossible to ensure the objectivity of school inspections.
(B) Teachers' unions in the UK have long wanted to abolish school inspections altogether.
(C) **According to some views, the results of school inspections may be affected by specific inspectors.**
(D) If inspectors make an inspection visit in pairs, their evaluation of a school tends to be less favourable.
(E) Teachers' unions want teachers to become inspectors.

17.

In his study, Tomás Faragó focused on the human ability to distinguish the emotions of dogs based on their barking. He wondered if, using an audio recording, we could tell when it is a manifestation of joy and when it is an expression of the feeling of threat. The results of the research showed that 63% of the participants interpreted the dog reactions correctly. Women were more successful than men in recognising the manifestations of both types of recorded emotions, with 65% of them succeeding.

Which of the following statements can be inferred from the text with certainty?

(A) **Dogs bark not only when they feel threatened, but also when they are happy.**
(B) The male participants understood the meaning of dog barking only in a minority of cases.
(C) Dogs bark because they try to imitate human emotions.
(D) The research participants correctly identified 63% of the recordings of barking.
(E) Tomás Faragó discovered that dog barking differs in the moment of joy and threat.

18.

The Classicist Laudon Pavilion in Veltrusy was inspired by a similar building in Prior Park in Bath, England, from the first half of the 18th century. Two column portals with triangular gables rise from the rectangular floor plan of the Laudon Pavilion, framing the high opposite entrances that can be accessed by stairs on both sides.

Which of the following statements can be inferred from the text with certainty?

I. The Laudon Pavilion in Veltrusy was built in the first half of the 18th century.
II. The Laudon Pavilion can be accessed by stairs from at least two sides.
III. The Laudon Pavilion is a Classicist building.

(A) only II
(B) only III
(C) only I and III
(D) **only II and III**
(E) all three

19.

Every supernova, i.e. an explosion that occurs at the end of a massive star's life, is absolutely wonderful, shaking a huge part of the universe. Some supernovae, however, are remarkable for their power and radiance. These are called hypernovae and are formed by the collapse at the end of the life cycle of exceptionally massive stars. In a hypernova, the star's core collapses directly into a newly emerging black hole, with two extremely energetic streams of plasma that nearly reach light speed being ejected from the poles of its rotation. These jets emit intense gamma radiation, and it is speculated that they cause what is called gamma-ray bursts. Explosions from the hypernova category are much more energetic, at least a hundred times brighter and about a thousand times rarer than normal supernovae. It is estimated that in our galaxy an explosion of hypernova size occurs every 200 million years.

Which of the following statements can be inferred from the text with certainty?

(A) Every star ends its life with an explosion, but only some of these explosions are called hypernovae.
(B) In our galaxy, another hypernova explosion should not occur earlier than in 200 million years.
(C) Only one star out of a thousand collapses in an explosion referred to as supernova.
(D) The collapse of some stars may be associated with the formation of black holes.
(E) It has been proven that there is a gamma-ray burst every time a massive star collapses.

20.

According to PISA surveys, children being educated in OECD countries spend an average of 44 hours a week learning, which is equivalent to 55% of their available time (i.e. after deduction of weekends and eight hours of sleep per day). In some non-OECD countries, children learn much longer; for example, in the United Arab Emirates it is at least 65% of their available time, while in some OECD countries (for example, in Finland or Germany) children learn less than half of their available time. Most of the difference is due to learning outside school, homework and private lessons. In the Emirates, children spend only two hours more at school than their Finnish peers, but outside school it is 17 hours more spent on learning per week. However, there is not always a direct correlation between the time children spend learning and the results they achieve. This is evidenced by the results in international PISA tests.

Which of the following statements can be inferred from the text with certainty?

(A) Children in the United Arab Emirates do not have enough time to sleep and pursue their hobbies.
(B) On average, children in Finland spend fewer than 44 hours per week learning.
(C) PISA focuses exclusively on research into education in OECD countries.
(D) Children in Germany are more clever than children in the United Arab Emirates.
(E) The results of international PISA tests are questionable.

Read the text and then choose the **best** answer to each question. Answer all questions using **only** the information given in or implied by the text.

QUESTIONS 21–26

Sleep-deprived people may be more prone to false confessions

While the amount of sleep a person truly needs remains up for debate, the effects of not getting enough, both on the mind and the body, are clear to see. Sleep deprivation has been linked to a variety of conditions, including obesity, diabetes and depression. On top of that, a startling new study has shown that people who have been deprived of sleep are much more likely to sign a false confession than those who have had an undisturbed night of rest.

The study has obvious and perhaps worrying implications for police interrogation of crime suspects. In addition, it helps paint a more comprehensive picture of sleep deprivation's effects on brain function. "A number of studies have consistently found that there are dramatic changes in the brain with sleep deprivation," lead researcher Kimberly Fenn told IFLScience. "One of the strongest effects is a reduction in the activity of the frontal lobes, which are important for decision making."

False confessions – an innocent person admitting guilt – are a serious and complex subject. With interrogations often occurring during sleep hours, studies examining the effects this could be having on suspects are justified. For this particular study, Fenn and her colleagues recruited 88 volunteers and had them complete computer-based tasks during three laboratory sessions, spread over a week. Participants were monitored and repeatedly told not to press the escape button on the keyboard as that would cause them to lose all of their data. On the last night, half the participants slept for eight hours in lab bedrooms while the others were kept awake. "In the real world it's rare that people stay awake for a full night. However, it's common for people to get insufficient sleep over multiple nights. The important thing is that pretty much every physiological and cognitive effect seen after one night of sleep deprivation is also seen after a couple of nights of sleep restriction." Before participants were allowed to leave at the end of the study, they were given a form that summarized their activities and falsely accused them of hitting the escape key, which they were asked to confirm for accuracy and sign. Surprisingly, while only 18 percent of the well-rested participants signed the false allegation, it was signed by half of those who had been deprived of sleep the night before. When asked a second time, the figures bumped up to 39 and 68 percent, respectively.

Whether or not this study will have an impact on the criminal justice system remains to be seen. Nevertheless, in light of the findings, the authors recommend that assessments of sleepiness should be made before interrogations.

(http://www.iflscience.com/brain/sleep-deprived-people-may-be-more-prone-false-confessions)

21.

According to the text, which of the following has not yet been determined?

(A) whether sleep deprivation affects the body
(B) how many hours of sleep people need
(C) how many people suffer from sleep deprivation
(D) what may disturb a good night's rest
(E) whether there is a link between sleep deprivation and false confessions

22.

When asked a second time, what percentage of the participants who were sleep deprived confirmed they had pressed the escape key in the course of the study?

(A) 18 percent
(B) 32 percent
(C) 39 percent
(D) 50 percent
(E) 68 percent

23.

What do the authors of the study suggest?

(A) That interrogations should be preceded by an evaluation of sleepiness.
(B) That crime suspects should never be interrogated at night.
(C) That most people sent to prison are in fact innocent.
(D) That crime suspects should always take a nap before being interrogated.
(E) That a reform of the criminal justice system is inevitable.

24.

Which two of the following statements about Fenn's study are true?

  I.   The participants were warned more than once against pressing the escape key.
  II.   The whole study took two weeks.
  III.   The participants didn't get enough sleep for several nights in a row.
  IV.   The accusation which the participants faced at the end of the study was unfounded.

(A) I and II
(B) I and III
(C) I and IV
(D) II and III
(E) III and IV

25.

Which of the following statements best summarizes the main purpose of Fenn's study?

(A) The study tried to show that getting insufficient sleep for several nights has the same effects as staying awake for one full night.

(B) The study tried to determine the effects of sleep deprivation on the performance in computer-based tasks testing cognitive skills.

(C) The study tried to prove that sleep deprivation affects the activity in the frontal lobe and the ability to make decisions.

(D) **The study tried to determine whether the likelihood of a false confession is related to the amount of sleep a person gets.**

(E) The study tried to show that most innocent people who are interrogated by the police are severely sleep deprived.

26.

Which two of the following consequences of sleep deprivation are mentioned in the text?

  I. Sleep deprivation lessens the risk of serious health problems, such as high blood pressure or stroke.

  II. Sleep deprivation affects the area in the brain which plays a vital role in decision making.

  III. Sleep deprivation affects the probability of a person being accused of a crime.

  IV. Sleep deprivation makes people more prone to confess to acts which they have not in fact committed.

(A) I and II
(B) I and IV
(C) II and III
(D) **II and IV**
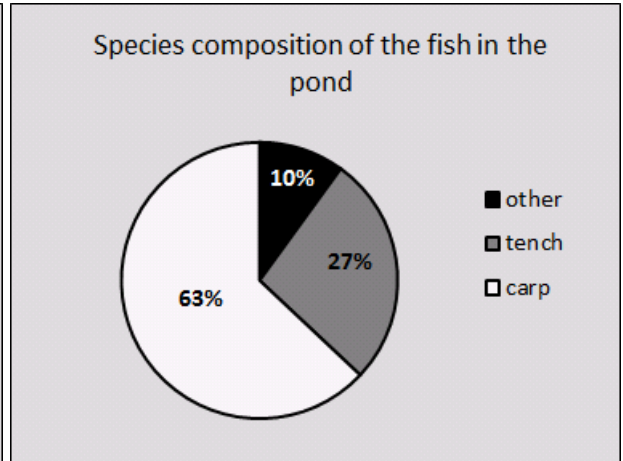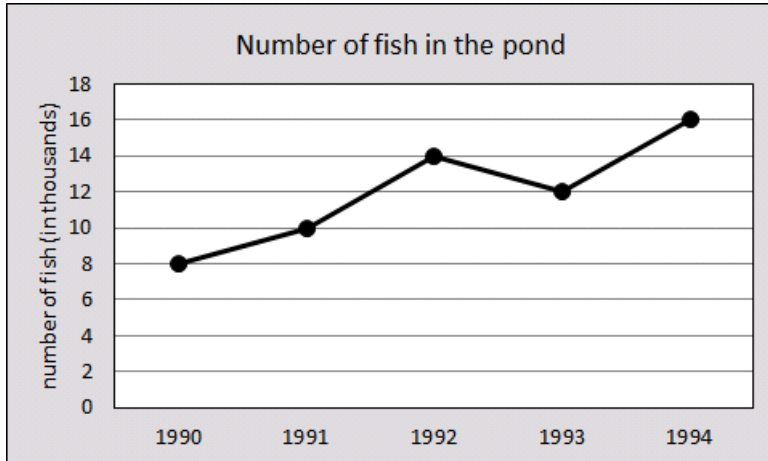**(E)** III and IV

STOP – END OF SECTION 1

If you have finished before time is called, you may check your work on this section only.
You may not start working on the following section!

The use of a calculator is not permitted! Unless indicated otherwise, all numbers used are real numbers based on the decimal system. All lines that appear straight should be considered to be straight lines. The number placed next to a part of a geometric shape indicates the size of that part. **No assumptions should be made about the size of any unmarked parts of the shapes.** Solve the geometry problems using mathematical knowledge, not estimation or measurement from the figure. If any question contains a variable, all its possible values must be considered for the solution.

QUESTIONS 27–29

The line graph shows the total numbers of fish in the pond in 1990–1994, each year as of 30 June. The pie chart shows the species composition of the fish in the pond, which was identical for all the presented years.

27.

By how many was the number of carp as of 30 June 1993 higher than that as of 30 June 1991?

(A) **by 1,260**
(B) by 2,000
(C) by 3,210
(D) by 3,320
(E) by 3,780

28.

In total, how many tench were in the pond as of 30 June 1994?

(A) 3,800
(B) 3,960
(C) 4,205
(D) **4,320**
(E) 4,477

29.

What was the average number of other fish in the pond as of 30 June in 1990–1994?

(A) 800
(B) 1,000
(C) **1,200**
(D) 1,400
(E) 2,000

QUESTIONS 30–32

Mr Smith owns a stall where he sells five types of fruit. The table shows the sales price for 1 kilogram for each type of fruit (in CZK – Czech crowns), the number of kilograms of fruit he sold on Monday, and the number of kilograms of fruit that went bad on Monday, so Mr Smith had to throw it away instead.

	Price for 1 kg (in CZK)	Amount of fruit sold (in kg)	Amount of fruit that went bad (in kg)
Apples	20	50	2
Oranges	30	40	6
Plums	20	50	1
Bananas	35	60	3
Pears	25	40	0

30.

How much could Mr Smith have made on all the fruit that went bad on Monday if he had sold it at the sales prices indicated in the table?

(A) CZK 12
(B) CZK 100
(C) CZK 240
(D) CZK 325
(E) CZK 345

31.

Altogether, how many kilograms of fruit did Mr Smith sell on Monday?

(A) 12 kg
(B) 110 kg
(C) 233 kg
(D) 240 kg
(E) 252 kg

32.

On which type of fruit did Mr Smith make the most money on Monday?

(A) on apples
(B) on oranges
(C) on plums
(D) on bananas
(E) on pears

In the following items, compare the values of the expressions on the left and on the right and choose answer
(A)   if the value on the left is greater,
(B)   if the value on the right is greater,
(C)   if the values are equal,
(D)   if it cannot be determined which value is greater (i.e. it cannot be unequivocally decided if the value on the left is greater than the value on the right, smaller than the value on the right or the same as the value on the right).

Information regarding one or both expressions is given above the expressions.

left   **right**

33.

Lea has the same number of stamps as Eve and Irene together. Irene has twice as many stamps as Eve.

half of the number of stamps that Lea has	number of stamps that Eve has

(A) **The value on the left is greater than the value on the right.**
(B) The value on the right is greater than the value on the left.
(C) The value on the right is the same as the value on the left.
(D) It cannot be determined which value is greater.

34.

The value of 30 thalers is equal to the value of 4,000 yen.
The value of 3,000 yen is equal to the value of 20 kuna.

value of 10 kuna	value of 10 thalers

(A) **The value on the left is greater than the value on the right.**
(B) The value on the right is greater than the value on the left.
(C) The value on the right is the same as the value on the left.
(D) It cannot be determined which value is greater.

35. Based on the decision of the IEC, the task was removed.

$10 \cdot 10^{-2}$	0,1

(A) The value on the left is greater than the value on the right.
(B) The value on the right is greater than the value on the left.
(C) **The value on the right is the same as the value on the left.**
(D) It cannot be determined which value is greater.

left   **right**

36.

Paula is three times older than Monica. In ten years, Paula will only be twice as old as Monica.

Paula's age ten years ago	30 years

(A) The value on the left is greater than the value on the right.
(B) **The value on the right is greater than the value on the left.**
(C) The value on the right is the same as the value on the left.
(D) It cannot be determined which value is greater.

37.

Number m is positive.

one seventh of 30 % of m	one third of 70% of m

(A) The value on the left is greater than the value on the right.
(B) **The value on the right is greater than the value on the left.**
(C) The value on the right is the same as the value on the left.
(D) It cannot be determined which value is greater.

38.

$$a - b = 7$$

a^2	b^2

(A) The value on the left is greater than the value on the right.
(B) The value on the right is greater than the value on the left.
(C) The value on the right is the same as the value on the left.
(D) **It cannot be determined which value is greater.**

Each of the following items consists of a question and two statements, marked as (1) and (2), which contain certain information. Some items also include introductory information. Using all this information, knowledge of mathematics and well-known facts (i.e. the number of days in July, what is meant by "from left to right", etc.), decide whether the information is **sufficient to determine an unambiguous answer** to the question asked.

39.

How many passengers are on board the aircraft?

(1) The aircraft capacity is 160 passenger seats.

(2) If the number of passengers on board is increased by a third, exactly three quarters of the passenger seats will be occupied.

(A) Statement (1) alone is sufficient, but statement (2) alone is not sufficient.

(B) Statement (2) alone is sufficient, but statement (1) alone is not sufficient.

(C) **Both statements together are sufficient, but neither statement alone is sufficient.**

(D) Either statement alone is sufficient.

(E) Statements (1) and (2) together are not sufficient.

40.

The chess club has 53 members. How many of them are girls?

(1) If each girl played exactly one chess game with each of the other girls, they would play a total of 153 games.

(2) If one fifth of the boys left the club, there would be 10 more boys than girls.

(A) Statement (1) alone is sufficient, but statement (2) alone is not sufficient.

(B) Statement (2) alone is sufficient, but statement (1) alone is not sufficient.

(C) Both statements together are sufficient, but neither statement alone is sufficient.

(D) **Either statement alone is sufficient.**

(E) Statements (1) and (2) together are not sufficient.

41.

A bus left point A for point B, going at a constant speed of 45 kmph. Two hours later, a passenger car left point A on the same route at a constant speed of 75 kmph. The car caught up with the bus at point S, located on the route between A and B. What is the distance between point A and point S (on the route used by both vehicles)?

(A) 90 km
(B) 150 km
(C) 135 km
(D) 225 km

42.

Dana was doing a jigsaw puzzle consisting of 2,000 pieces of the same size. Having completed 80% of the picture, she found that she had lost 20 pieces. What percentage of the so-far uncompleted part of the picture cannot be completed because of the missing pieces?

(A) 1%
(B) 2%
(C) 5%
(D) 20%

43.

How many different four-digit numbers containing four of the digits 2, 3, 0, 8 and 5 are there if no digit can be repeated in any number and no number can start with zero?

(A) 40
(B) 48
(C) 64
(D) 96

44.

An exercise book is nine times more expensive than a pencil. An exercise book and a pencil cost together CZK 20. How much do two exercise books and three pencils together cost?

(A) CZK 36
(B) CZK 42
(C) CZK 45
(D) CZK 60

45.

Together, a beaver and an otter eat two times more kilograms of food per day than a coypu. A beaver eats five times more kilograms of food per day than an otter. How much food does a coypu eat per day if altogether the three animals eat 6 kilograms of food per day?

(A) 1 kg
(B) 2 kg
(C) 3 kg
(D) 4 kg

Each of the following items is based on a **text** or an **equation**, an **inequality**, a **function notation** or another **mathematical expression**, or a **combination** thereof. The solution of the item consists in mathematising a certain situation or, conversely, transforming the mathematical directions into verbal form. Always **read the item carefully**.

46.

There were 5 people in the lift whose average weight was x kg. They were joined by a sixth person, weighing 60 kg. The average weight of the people in the lift changed to y kg. Which of the following relations expresses this situation?

(A) $\dfrac{5x}{6} + 60 = y$

(B) $\dfrac{x+60}{6} = y$

(C) $5x + 60 = 6y$

(D) $x + 60 = y$

47.

The restaurant has the same number of two-seat, three-seat and four-seat tables. Altogether, there are x seats at all the three-seat tables. The total number of seats at all tables is y. Which of the following relations expresses this situation?

(A) $2 + x + 4 = y$

(B) $x + (2+4) \cdot x = y$

(C) $\dfrac{x}{3} \cdot (2+3+4) = y$

(D) $3x \cdot (2+3+4) = y$

48.

Lucas and Mary each secretly chose a positive integer less than 8 (the numbers could be the same or different). Lucas multiplied his number by 3. Mary multiplied her number by 5. The sum of the results of both calculations (products) is 45. What is the sum of the secret numbers chosen by Lucas and Mary?

(A) 13
(B) 11
(C) 9
(D) 8

Each of the following items is based on a text and a set of conditions. Pay attention to which conditions apply to the whole set of items and which conditions are specified for one item only. For some items, it may be helpful to use a rough sketch.

QUESTIONS 49–51

Each of the four friends (Adam, Barney, Cecil, David) has a different partner (Mary, Nora, Olivia, Paula) and gave her a different flower (orchid, tulip, rose, aster) as a Valentine's Day gift. We know that:

- Paula is neither Barney's nor David's partner.
- Cecil's partner is either Mary or Olivia.
- Barney gave his partner an aster.
- Nora got a rose.

49.

Which of the friends could have given his partner a tulip?

(A) only Adam
(B) only Cecil
(C) only David
(D) only Adam or Cecil
(E) Adam, Cecil or David

50.

Which of the girls can Adam have as his partner?

(A) only Mary
(B) only Olivia
(C) only Paula
(D) Mary or Olivia
(E) Paula or Nora

51.

Which of the girls could have been given an orchid?

(A) only Paula
(B) only Olivia
(C) only Mary or Olivia
(D) only Olivia or Paula
(E) only Mary, Olivia or Paula

QUESTIONS 52–54

In a motorcycle race, riders of motorcycles of five different brands (Aprilia, Honda, Jawa, Yamaha, Kawasaki) placed in the top five. We know that:

- No two riders took the same place.
- Aprilia did not come fifth.
- Yamaha came before Jawa, but after Kawasaki.
- Honda came fourth.

52.

Which motorcycle could have come second?

(A) only Aprilia or Kawasaki
(B) only Jawa or Aprilia
(C) only Yamaha or Kawasaki
(D) only Yamaha or Aprilia
(E) Aprilia, Yamaha or Kawasaki

53.

If Aprilia had come third, which of the following statements would certainly be true?

(A) Yamaha came first.
(B) Kawasaki came second.
(C) Aprilia came just after Yamaha.
(D) Jawa came before Honda.
(E) Honda came before Yamaha.

54.

In which place could Yamaha have come?

(A) only in first place
(B) only in second place
(C) only in third place
(D) only in second or third place
(E) in first, second or third place

STOP – END OF TEST

If you have finished before time is called, you may check your work on this section only.
You may not work on the preceding section!