CISIA
Consorzio Interuniversitario
Sistemi Integrati per l'Accesso

SAMPLE TEST

English TOLC-E

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Edizioni CISIA

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LOGIC

1. Let A, B, and C be three sets such that $A \cup B = C$, where $\cup$ denotes the union of sets (and $\cap$ the intersection). If C has 12 elements, whereas A and B have 7 elements each, then we can say that:

   A. $A \cap B$ is empty

   B. $A \cap B$ has 2 elements

   C. $A \cap B$ has 1 element

   D. $A \cap B$ has 4 elements

   E. $A \cap B$ has 3 elements

2. In Mathland lived a mathematician, Tony, who studied natural numbers for years. The natural numbers in Mathland have the same properties as our natural numbers; in particular they can either be even or odd.
   Tony discovered a special kind of natural numbers, Tony's numbers; many contemporary mathematicians believe all Tony's numbers are even, but the great Hiyam Smarta does not agree.
   This means that Hiyam Smarta believes that:

   A. there is at least one Tony's number which is not even
   B. if a natural number is not a Tony's number, then it is odd
   C. all Tony's numbers are odd
   D. no odd number can be a Tony's number
   E. no even number can be a Tony's number

3. We know that some students showed up for today’s test in school, but also that not all students of the school were present. Therefore we can deduce that:

   A. it is possible that all students of the school have taken the test

   B. no student of the school showed up for the test

   C. we are not sure whether someone showed up for the test

   D. the majority of the students of the school showed up for the test

   E. not all students of the school failed to show up for the test, but at least one did

4. Consider the following statements:

   - All mathematicians are absent–minded
   - Lewis likes to swim
   - All people who like to swim are absent–minded

   If these statements are true, which of the following statements is also necessarily true?

   A. All absent–minded people like to swim.

   B. Lewis is a mathematician.

   C. All absent–minded people are mathematicians.

   D. Lewis is absent–minded.

   E. All mathematicians like to swim.

5. In order to comply with the building codes of a certain city, a private house is not deemed habitable if it does not fulfill the required standards for energy and water saving.
   If this regulation is always applied it means that:

   A. all private houses which fulfill the standards for water saving also fulfill the standards for energy saving

   B. if a private house fulfills the required standards for energy and water savings, then certainly it will be considered habitable

   C. fulfilling the required standards for water and energy saving is a necessary condition to be considered habitable

   D. fulfilling the required standards for water and energy saving is a sufficient condition to be considered habitable

   E. there are private houses which do not fulfill the required standards for water saving but are considered habitable

6. The sum of the ages (taken as integer numbers) of ten people of age (i.e. 18 or older) is equal to 380 years.
   Therefore we can deduce that:

   A. all ten people must be younger than 40

   B. if one person is younger than 20, then at least one of the others is older than 40

   C. if one person is older than 40, then at least one of the others is younger than 20

   D. at least one person is 39 years old or older

   E. all ten people are at least 19 years old

7. According to the traffic rules in Driveland, all car drivers must have a high–visibility jacket and a warning triangle on board. Unfortunately, not everyone follows this rule.
   Therefore we can certainly say that, in Driveland:

   A. there is at least one driver who does not have the jacket or the triangle on board

   B. there is one driver who does not have the jacket on board

   C. there is one driver who has both the triangle and the jacket on board

   D. there is at least one driver who does not have neither the jacket nor the triangle on board

   E. there is one driver who does not have the triangle on board

8. Sebastian, a very thorough person, has a drawer for scarfs and another one for caps. In the scarfs drawer there are 5 red scarfs, 5 white ones and 5 green ones (all identical except for the color); in the caps drawer there are 5 red scarfs, 5 white ones and 5 green ones (again, all identical except for the color). He always wears a scarf and a cap of the same color. Tonight he has to go out, but suddenly there is a blackout and he is not able to distinguish colors anymore.

   What is the minimum number of scarfs and caps (added together) that he needs to take in order to be sure to wear a white scarf and a white cap?

   A. 20

   B. 21

   C. 16

   D. 12

   E. 22

9. Under the current legislation, a formal warning must be sent to all Cities that are in budget deficit and increased staff costs by more than 2% this year. Since the City of Conundrum has not received a warning this year, we can be sure that:

   A. if its staff costs increased by 3%, then it is not in budget deficit

   B. its staff costs increased by less than 2%

   C. if it is not in budget deficit, then its staff costs increased by less than 2%

   D. it is not in budget deficit and, at the same time, its staff costs increased by less than 2%

   E. it is not in budget deficit

10. We want to balance a two–arms scale by using some spheres with the same size but different weight depending on their color (white, red, or green). The first attempt indicates that 2 white spheres together with 1 red sphere balance 2 red spheres and 1 green sphere exactly.
Now we put 1 white sphere, 1 red and 1 green on the left plate of the scale, and 2 white spheres on the right one.
Which of the following actions is the only one that allows us to balance the scale?

A. Adding one white sphere on the right plate.

B. Adding one white sphere on the left plate.

C. Adding one red sphere on the left plate.

D. The scale is already balanced.

E. Adding one green sphere on the right plate.

11. A third of the members of the Administrative Board of a company voted in favor of the restructuring plan; three quarters of the members of the same Board voted in favor of the budget approval. Therefore we can be sure that:

A. some members of the Board voted against the restructuring plan and against the budget approval

B. those who voted in favor of the restructuring plan also voted in favor of the budget approval

C. no members of the Board voted against the restructuring plan and against the budget approval

D. those who voted in favor of the budget approval also voted in favor of the restructuring plan

E. at least one member of the Board voted in favor of the budget approval and in favor of the restructuring plan

12. For each question in a test there are five possible answers; only one answer is correct and all the others are wrong. Therefore:

A. if an answer is the negation of another one, they are both wrong

B. if two answers are equivalent then one of them is correct

C. if two answers are equivalent then they are both wrong

D. if answer X entails answer Y then Y is correct

E. if an answer is the negation of another one, then the correct answer is one of the other three

13. We know that the majority of those who have been contacted answered the survey; we also know that everyone who answered said they support the construction of the park.
Which of the following statements is certainly *false*?

A. Everyone who has been contacted supports the construction of the park.

B. Not everyone who has been contacted supports the construction of the park.

C. No–one who has been contacted supports the construction of the park.

D. Everyone who supports the construction of the park has been contacted.

E. Not everyone who supports the construction of the park answered the survey.

READING COMPREHENSION

INSTRUCTIONS

This section of the Test consists of one or more excerpts taken from works published in English. The text has not been modified in any way and reflects the writing styles typical of the time and context in which the authors lived.

Each text is followed by five questions with five closed answers labelled with capital letters from A to E.

For each question choose the answer you consider correct based on what is explicitly or implicitly stated; in other words base your answer only on what is written in the text, and not on what you might already know about the subject.

TEXT I

The development of electronic publishing in small markets

From: Ivona Despot and Tomislav Jakopec, *The strategy for the development of electronic publishing in small markets*, Libellarium: journal for the research of writing, books, and cultural heritage institutions, [S.l.], v. 6, n. 1-2, p. 81 – 90, mar. 2014.

[1] Throughout history, publishing has adjusted to market requirements, aiming for cheaper production and book prices in order to attract a larger number of readers. Today, in the majority of developed publishing markets, e-books have become part of the publishing business. However, every new technology can represent a factor of "creative destruction": transistors put an end to the cathode tube industry, and photocopying to the indigo paper industry. So, can the digitized book be considered a milestone in the history of publishing and what are the consequences? This study presents new trends and attempts to predict their potential impact on publishing, with a special focus on small linguistic distribution markets such as the Croatian book market.

[2] While on the one hand, some experts predict the collapse of major publishers and booksellers due to their failure to focus on the future needs of readers in the digital environment, on the other, poor sales of e-publications and high prices of e-readers have led publishers to question the future success of the e-publishing business.

Claims that e-publishing needs to be promoted through conferences in order to become lucrative support this skepticism. However, the most likely outcome is a balance between continuity and discontinuity. While it is true that people do not reject their old habits and activities whenever a new technology emerges, it is commonly believed that the advancement of technology and the emergence of a simpler and cheaper process of digitization, will probably lead to an increased market for content published in digital form.

[3] Seen from the perspective of aspiring authors, expert Miha Kovac affirms that digital technology has turned book publishing into one of the most democratic media industries. Today, online bookstores offer titles published by the authors themselves, without official publishers. Apple has launched the *iBooks Author* programme which allows the author to shape his work graphically and forward it directly to the bookstore. Technology has cheapened and simplified the book publishing process, and opened the door to new players. Enriched e-books with added video and audio content offer new dimensions to the reading experience. As for the traditional role of the publisher, the rapid development of self-publishing inevitably leads to content overproduction of varying quality. Consequently, a publisher is needed to help the readers select the best content available. The book chain is changing, the publisher's role is adjusting to the new system, but it is still considered very necessary.

[4] So what does the future hold? On the one hand, information and communication technology is developing at such a rapid rate that future products and services cannot be easily predicted. Leading companies in this field keep their future products and services secret until market placement in order to protect themselves from

competition. However, meeting the individual needs of each user is essential. With this in mind, the publishing industry has announced the emergence of the "pay as you read" business model allowing partial payment of content, unlike the previous practice of paying for the whole unit. This is particularly useful in the field of academic and scientific publications allowing, for example, each user to purchase a single article rather than an entire journal or one chapter instead of the whole book. Users can create the book they need by combining different articles or chapters.

[5] There can be no doubt, therefore, that e-publishing is here to stay. However, when it comes to small markets, like Croatia, the two factors affecting the development of e-publishing are market size and language coverage. According to Digital Agenda for Europe indicators, Croatian society does not yet possess the necessary pre-requisites for successful e-publishing, but it is slowly moving towards that goal. Consequently, e-book publishing development strategies should be aimed towards ensuring a long-term cultural development in terms of digital infrastructure and internet use, whereas the concrete implementation of this new development should be left to the market in question.

TEXT I QUESTIONS

14. The primary purpose of the passage is to:

A. present the results of statistical analyses and propose further studies

B. explain a recent development and predict its eventual consequences

C. identify the reasons for a negative trend and recommend measures to address it

D. outline several theories about major technological changes from the past

E. reconcile conflicting research findings

15. In paragraph **[2]**, the author states that:

A. there is general agreement that e-publishing will soon replace paper books

B. experts believe that e-publications will dominate the scientific sphere

C. technological advances enabling cheaper digitalization will make e-publications more popular

D. many important publishers are in serious financial difficulty due to the rise in e-publications

E. conferences promoting e-books have been very successful

16. According to paragraph **[3]**, due to an increase in self-publishing:

A. the publisher’s role is changing

B. the quality of publishing has improved

C. publishers are no longer necessary

D. there is more need for digital experts

E. publishing has become more exclusive

17. The author states in paragraph **[4]** that, today, publishers:

A. require payment only if the reader likes the book

B. share new products and services with rival publishing houses

C. are particularly interested in developing the scientific market

D. no longer protect works by copyright

E. must aim to satisfy the needs of individual users

18. In the final paragraph (**[5]**), the author states that Croatia:

A. has the necessary foundations on which to develop an e-publishing market

B. has a prosperous e-publishing market

C. will not be able to develop an e-publishing market due to its limited language coverage

D. needs to develop its broadband network and reduce the digital divide

E. will not be able to develop an e-publishing market due to its small market size

TEXT II

Coconut oil

From: Renato da Silva Lima and Jane Mara Block, *Coconut oil: what do we really know about it so far?*, Food Quality and Safety, Volume 3, Issue 2, May 2019, pages 61-72.

[1] Coconut is one of the most important foods in various tropical and subtropical countries where the coconut tree is referred to as the "tree of life". The coconut is a very useful plant with a wide range of products being sourced from it. Coconut products are used to make everything from clothing to animal feed to beauty creams. Its kernel is harvested for its edible flesh and delicious water, while its husk is used for its strong fibres. Most important, however, are its oils, which are extracted, processed, and marketed for culinary, medicinal and cosmetic uses alike. The plant is cultivated in more than 90 countries with a total yield of 59 million tonnes in 2016. The production of coconut is extremely important in Asia, which is responsible for over 80 per cent of the world’s coconut production.
[2] In tropical countries, coconut oil has always been used as a cooking oil and in the late 19th century, the demand for edible oils also began to increase in Europe and in the USA. Once Europeans became aware of the possibilities offered by the fruit and recognised its versatility, they started establishing coconut plantations in the Caribbean, Southeast Asia, and the South Pacific and from the 1890s onwards, coconut oil became very popular in European countries and in the USA as an edible oil. This first coconut oil boom lasted

until the onset of World War II, around 1940, when the supply of the product was cut off to Western countries leading to a coconut oil shortage. As a result of this scarcity, the price of the commodity surged, thus **paving the way** for the rival soybean oil industry to expand and develop. The shift to soybean oil was further aided by the use of more modern technology which was employed in the processing facilities of the product.

[3] Once the war was over, countries with high coconut production tried to reintroduce the fruit into Western countries but with little success. Coconut oil was rejected at this point due to its high-saturated fat content. This rejection was associated with the findings of epidemiological studies conducted by the American physiologist, Ancel Keys, who formulated a hypothesis of the association between the consumption of high-saturated fat with a high blood cholesterol level and therefore the increased likelihood of cardiovascular disease. In 1956, in parallel to Keys' research, the American Heart Association started informing the population that consuming large quantities of high-saturated fat foods could increase the risk of cardiovascular disease. This, in turn, led to a decline in the popularity of coconut oil which was known to be high in saturated fat.

[4] In recent years, however, coconut oil has once again attracted the attention of the population worldwide, especially in Europe and North America. Celebrities, digital influencers, and even doctors have endorsed the use of this oil as a cooking medium in substitution of other vegetable oils and as a supplementary ingredient to be consumed with coffee and vitamin shakes. Blogs, internet videos, and articles are now promoting the consumption of coconut oil as a potential "miracle" food. Some media vehicles and health

specialists claim that this oil is capable of promoting health benefits, such as weight loss and the lowering of cholesterol levels as well as having anti-inflammatory effects and it is now affirmed that the consumption of coconut oil may actually help in the prevention of cardiovascular diseases. Clearly, these claims are now being used by coconut oil companies to market the product and boost sales. Nevertheless, governmental regulatory agencies in many countries remain sceptical about the benefits obtained by the consumption of coconut oil due to its high-saturated fatty acid content. In general, studies in this field present conflicting results and there is a serious lack of long term human-based clinical trials. Therefore, as a saturated fat, coconut oil should be consumed with moderation and the health allegations should not be used to market the product considering that they have not been scientifically proven so far.

TEXT II QUESTIONS

19. The author of the passage is primarily concerned with:

A. exploring research underlying the uses of coconuts

B. discussing the appeal of coconut oil and some concerns about its use

C. arguing for the adoption of coconut oil in promoting health benefits

D. comparing the advantages of coconut oil over other edible oils

E. clarifying the future of coconut oil companies

20. In paragraph **[2]**, the expression **paving the way** means:

A. blocking the future

B. indicating the method

C. making it easier

D. contrasting the desire

E. giving an example

21. According to paragraph **[2]**, which of the following statements is true?

A. Coconut plantations were destroyed during World War II.

B. Europeans preferred soybean oil as it was produced in Western countries.

C. Consumers stopped using coconut oil because soybean oil was a more modern equivalent.

D. Soybean oil had never been used as an edible oil until after World War II.

E. Soybean oil replaced the use of coconut oil due to the difficulties incurred in acquiring the latter.

22. Paragraph **[3]** states that:

A. eating coconut oil leads to heart problems in Western countries

B. the use of coconut oil in food was banned by the American Heart Association

C. consumers began to eat less coconut oil as it was thought to be a health risk

D. the American Heart Association advised consumers not to consume coconut oil

E. Western countries were unable to produce coconut oil

23. In conclusion, the author indicates that:

A. previous studies into the dangers of coconut oil were unfounded

B. research now shows that coconut oil should be used instead of other vegetable oils

C. further studies will prove the dangers of eating coconut oil

D. research into the consumption of coconut oil must be widened

E. coconut oil companies are funding further research

MATHEMATICS

24. Karl has completed 75% of his sticker album. Julia gives him the 10 missing stickers. How many stickers does the album contain in total?

A. 40

B. 70

C. 100

D. 25

E. 85

25. The equation $\frac{(x^2+2x+1)(x-1)}{x+1}=0$ has solution(s):

A. $x=0$ and $x=-1$

B. $x=-1$ and $x=1$

C. $x\neq 0$

D. $x=1$

E. $x=0$, $x=1$, and $x=-1$

26. If $f(x)=|5-3x|$, then $f(2)$ is equal to:

A. $f(-1)$

B. $f\left(\frac{4}{3}\right)$

C. $f(-2)$

D. $f(0)$

E. $f(1)$

27. Let $P(x)$ and $Q(x)$ be two expressions defined for every real number x, such that $P(x) \geq 0$ if and only if $x \geq 2$, and $Q(x) \geq 0$ if and only if $x \leq 1$. Then the inequality $P(x) \cdot Q(x) > 0$ is satisfied for:

A. there is insufficient data to answer

B. $x \geq 2$

C. $1 < x < 2$

D. $x < 1$ or $x > 2$

E. $x \leq 1$

28. If $y = \frac{ax - b}{a - bx}$, then x is equal to:

A. $\frac{ay + b}{a + by}$

B. $\frac{a + by}{ay + b}$

C. $\frac{ay + b}{a - by}$

D. $\frac{ay - b}{a + by}$

E. $\frac{ay - b}{a - by}$

29. Let $y = x^2 + 4x + c$ be the equation of a parabola. If we know that this parabola crosses the $x-$axis only at one point, what is the value of c?

A. 3

B. 1

C. -1

D. 0

E. 4

30. Consider a square Q and a circle inscribed in Q. Then the ratio between the area of the circle and the area of the square is:

A. greater than $\frac{4}{5}$ but less than $\frac{5}{6}$

B. all the other answers are incorrect

C. greater than $\frac{3}{4}$ but less than $\frac{4}{5}$

D. less than $\frac{3}{4}$

E. greater than $\frac{5}{6}$ but less than 1

31. If a and b are two numbers such that $0,35a = 0,2b$, what is the value of b expressed in terms of a?

A. $17,5a$

B. $175a$

C. $1,75a$

D. $0,0175a$

E. $0,175a$

32. Let x and y be two positive numbers such that $x^y > \left(\frac{1}{x}\right)^{\frac{1}{y}}$. Then we can certainly say that:

A. $x > y$

B. $y > 1$

C. x and y are both less than 1

D. $x > 1$

E. x and y are both greater than 1

33. The equation of the straight line perpendicular to $2x-y+3=0$ that forms a triangle of area 1 with the Cartesian axes in the first quarter is:

A. $y=\frac{-x-2}{2}$

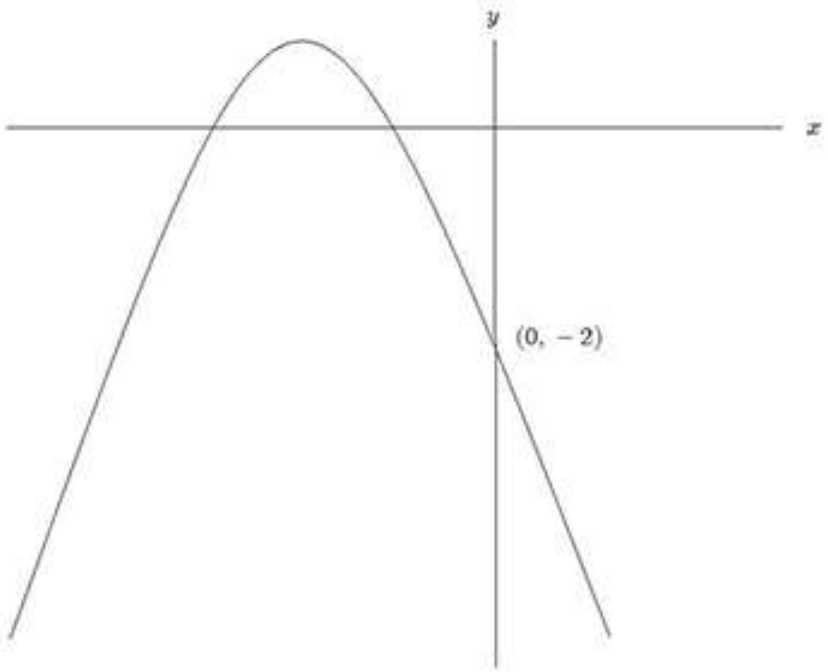
B. $y=\frac{2+x}{2}$

C. $y=\frac{2-x}{2}$

D. $y=2x-1$

E. $y=-2x-1$

34. The parabola whose equation is $y = ax^2 + bx + c$ (shown in the figure) crosses the $y-$axis at $(0, -2)$.
Which of the following equalities could be true?



A. $a + b + c = 3$

B. $a + b + c = -1$

C. $a + b + c = -3$

D. $a + b + c = 2$

E. $a + b + c = 0$

35. The expression $3^{x+y} + 3^{x-y}$ is equal to:

A. $3^{x^2-y^2}$

B. $3^{x+y}\left(1 + 3^{-2y}\right)$

C. $3^x 3^y - 3^{-y}$

D. $3^{\frac{x+y}{x-y}}$

E. 3^{2x}

36. The shares of three companies A, B, C had the same unit price two years ago. After one year, the price of A decreased by 10%, the price of B by 20%, and the price of C by 30%. The following year, A decreased by 30%, B by 20%, and C by 10%. Which of three shares has the highest price today?

A. All 3 shares have the same price.

B. C

C. A and C have the same price, which is greater than B.

D. B

E. A

Question	Correct Answer
1	B
2	A
3	E
4	D
5	C
6	B
7	A
8	E
9	A
10	A
11	E
12	C
13	C
14	B
15	C
16	A
17	E
18	D
19	B
20	C
21	E
22	C
23	D
24	A
25	D
26	B
27	C
28	A

29	E
30	C
31	C
32	D
33	C
34	C
35	B
36	D

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